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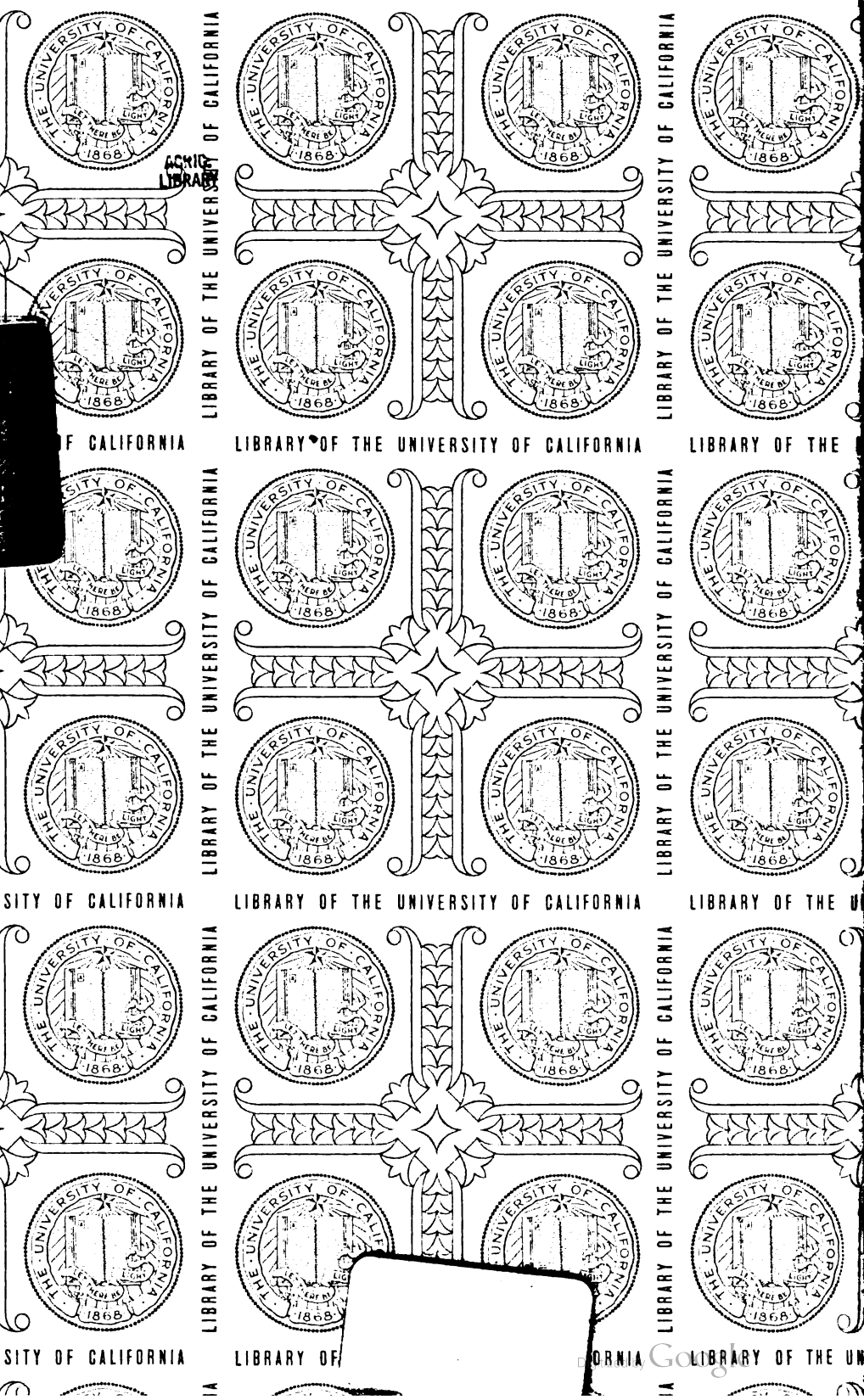
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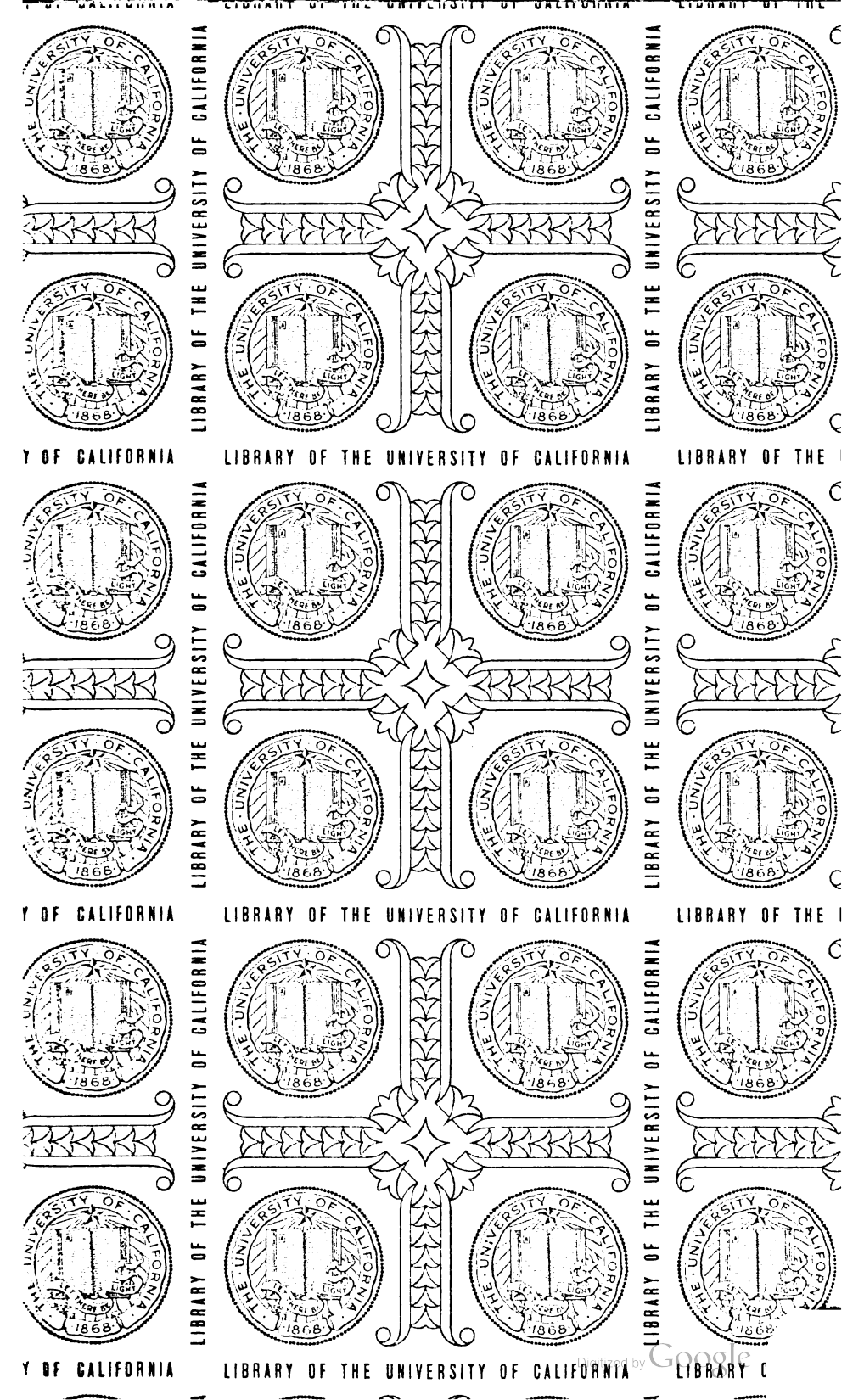
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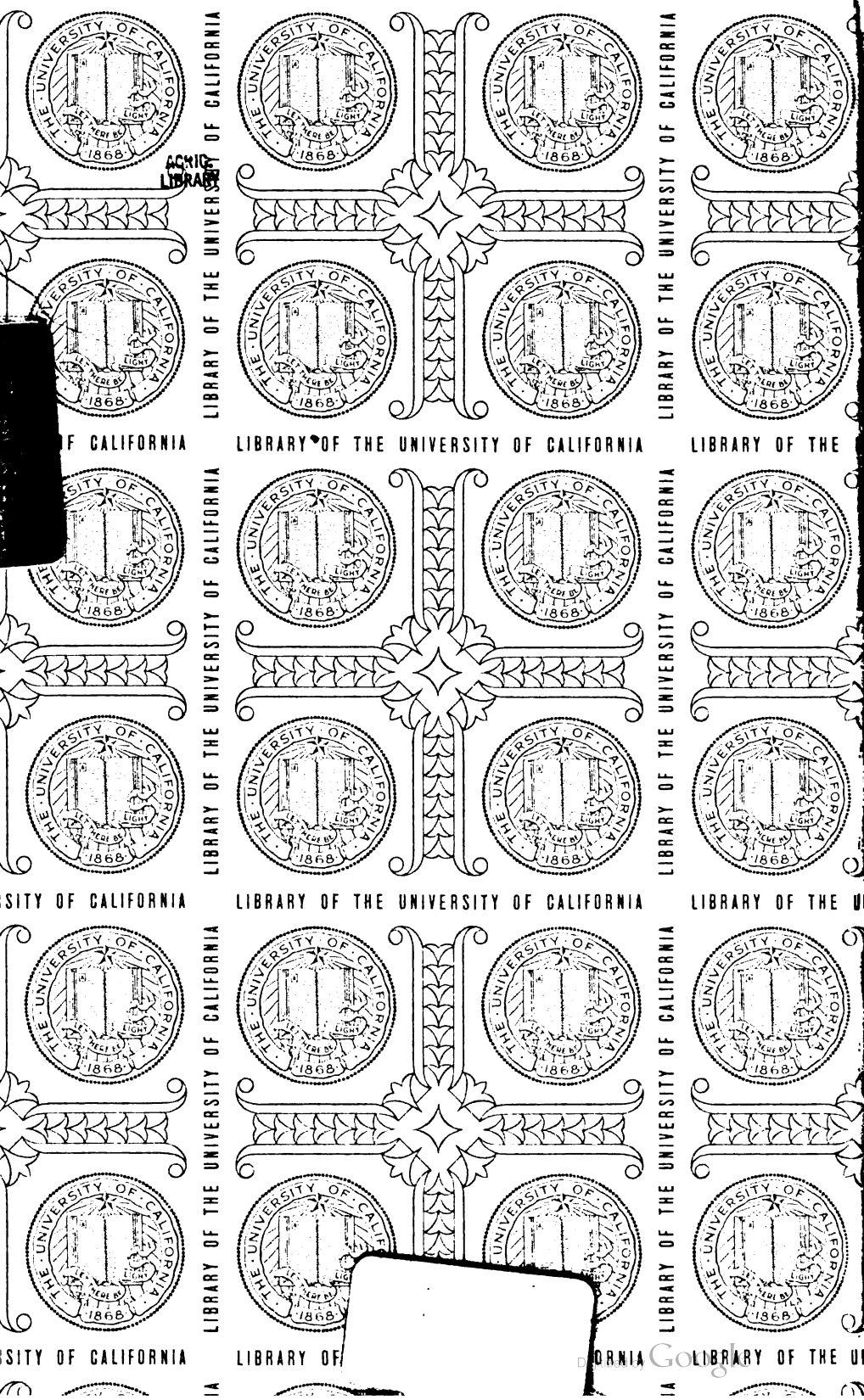
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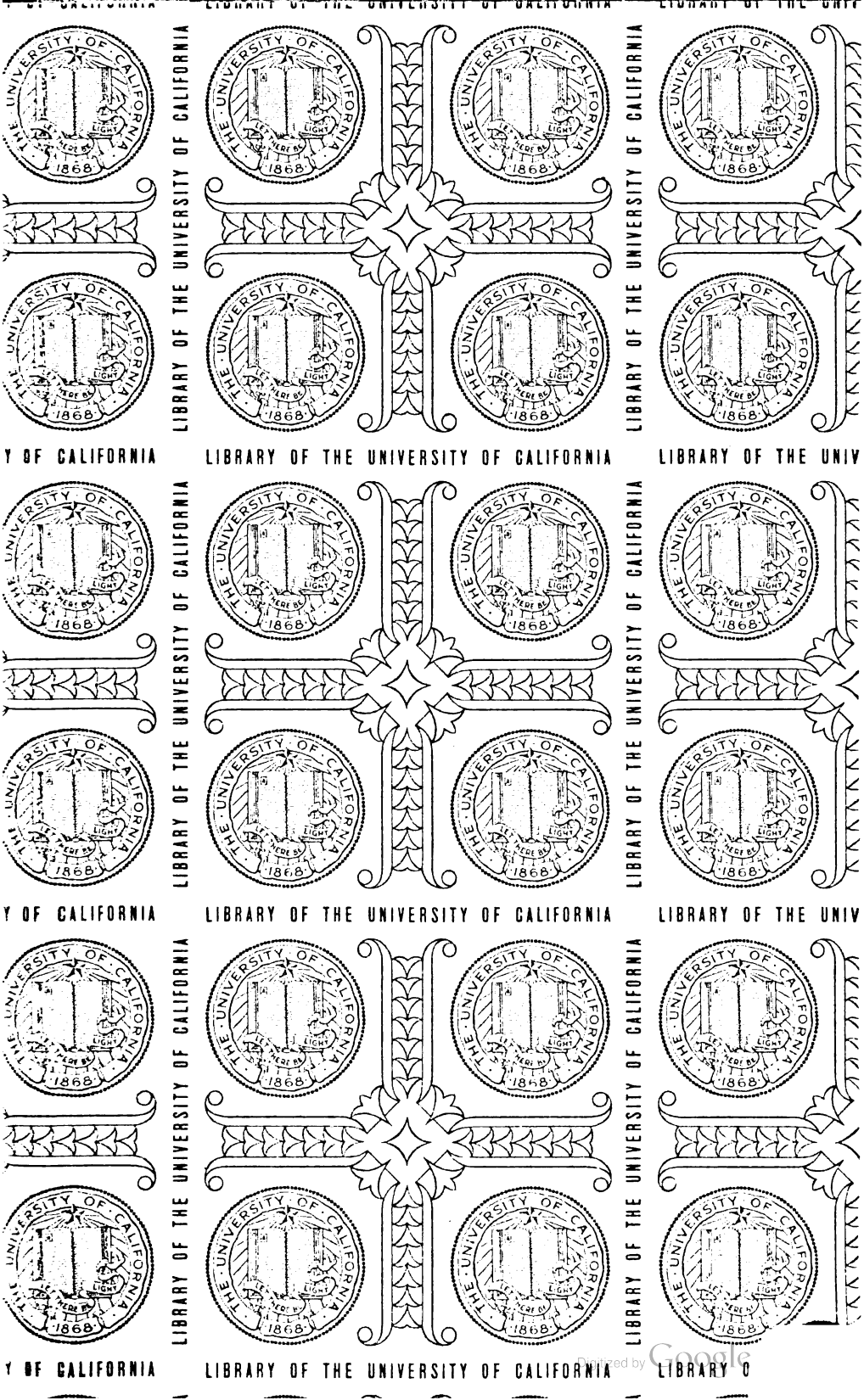

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Issued July 3, 1916.

United States Department of Agriculture,
OFFICE OF THE SECRETARY.

Report No. 109

[Contribution from the Bureau of Crop Estimates, Leon M. Estabrook, Chief.]

MEAT SITUATION IN THE UNITED STATES.

PART I.

STATISTICS OF LIVE STOCK, MEAT PRODUCTION AND CONSUMPTION, PRICES, AND INTERNATIONAL TRADE FOR MANY COUNTRIES.

BY

GEORGE K. HOLMES,
Bureau of Crop Estimates.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1916.

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EXPLANATORY STATEMENT.

In the winter of 1913–14 a committee of well-known investigators, familiar with agricultural conditions, was appointed by the Secretary of Agriculture to consider the economics of the meat situation. This committee was composed of Dr. B. T. Galloway, Assistant Secretary of Agriculture, as chairman; Dr. H. J. Waters, president of the Kansas State Agricultural College; Prof. C. F. Curtiss, dean of the Iowa State College of Agriculture and Mechanic Arts and director of the Iowa Agricultural Experiment Station; H. W. Mumford, professor of animal husbandry, University of Illinois; Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture; and Dr. T. N. Carver, Director of the Rural Organization Service, United States Department of Agriculture. Mr. Leon M. Estabrook, Chief of the Bureau of Crop Estimates, was made secretary of the committee.

No formal report was prepared by this committee, but, at the suggestion of the committee, independent inquiries dealing with several phases of the meat situation were undertaken by specialists of the United States Department of Agriculture. The results of these inquiries have been crystallized by the department in a series of five reports, under the general title of the "Meat Situation in the United States," each report complete within itself and bearing a separate number in the series of reports of the Office of the Secretary, as follows:

Part I. Statistics of Live Stock, Meat Production and Consumption, Prices, and International Trade for Many Countries. By George K. Holmes, Bureau of Crop Estimates. (Report No. 109.)

Part II. Live Stock Production in the Eleven Far Western Range States. By Will C. Barnes and James T. Jardine, Branch of Grazing, Forest Service. (Report No. 110.)

Part III. Methods and Cost of Growing Beef Cattle in the Corn Belt States. By J. S. Cotton and Morton O. Cooper, Office of Farm Management, and W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 111.)

Part IV. Utilization and Efficiency of Available American Feed Stuffs. By W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 112.)

Part V. Methods and Cost of Marketing Live Stock and Meats. By Louis D. Hall, F. M. Simpson, and S. W. Doty, Office of Markets and Rural Organization. (Report No. 113.)

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STATISTICS OF LIVE STOCK, MEAT PRODUCTION AND CONSUMPTION, PRICES, AND INTERNATIONAL TRADE FOR MANY COUNTRIES.[1]

SUMMARY.

NUMBER OF ANIMALS.

The United States is the most prominent nation in the production and consumption of meat. Its problems of maintaining its meat production are in detail peculiarly its own, but the general world-wide fact is that most other countries, especially the prominent meat-producing ones, also have their own problems. This country is by no means singular in its failure to sustain an undiminishing per capita number of meat animals.

The general fact is that throughout the world cattle are hardly increasing in number, sheep are declining, and swine are increasing. If comparison be made with increasing population, sheep are far from maintaining their numbers, in some smaller degree cattle are failing to do so, but in the case of swine there has been some gain above population in recent years, although a small one.

The number of cattle on farms of the United States was ascertained for the first time in the census of 1840, when nearly 15,000,000 head were counted. The number had increased to 25,600,000 in 1860, to nearly 36,000,000 in 1880, to 51,400,000 in 1890, and to 67,700,000 in 1900, including ranges. At the time of the census of 1910, taken April 15, instead of June 1 as before, 61,800,000 cattle were counted on farms and ranges, but the number would have been about 65,500,000 had they been counted June 1, or about 2,200,000 less than in 1900.

As nearly as can be determined, the number of cattle on farms and ranges in the United States reached its height about 1907, when the estimated number was 72,534,000. According to the estimates of the Bureau of Crop Estimates, the census number of cattle declined year by year from 61,800,000 in 1910 to 56,500,000 in 1913, and remained about the same in 1914, but there was a perceptible increase in 1915, and again in 1916, when the number of cattle on farms and ranges was estimated at 61,441,000. An upward turn has apparently again begun. The number of cattle not on farms and ranges in 1910 was nearly 2,000,000.

[1] This bulletin was prepared a short time before the present European war, which began August 1, 1914. Some later figures for the United States and Canada have been introduced in revision, but, when not otherwise specified, the "present time" is about 1913. "Meat products" excludes those, if any, not used for food.

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Spring lambs were omitted from the sheep censuses of 1840 and 1850, and presumably largely omitted subsequently, to and including 1890. Sheep on farms grew in number from 19,000,000 in 1840 to 22,500,000 in 1860, to 35,000,000 in 1880, to 36,000,000 in 1890, and to 61,500,000 in 1900, including ranges. In 1910 the census date was April 15, instead of June 1 as before, and the number of sheep on farms and ranges was 52,500,000. Had the census been taken for June 1, the number would probably have been about 63,000,000, or 1,500,000 above the number in 1900.

Taking the number of sheep, 52,500,000, as reported April 15, 1910, as the base, the number estimated by the Bureau of Crop Estimates of the Department of Agriculture is a declining one to 49,200,000 in 1916, a loss of about 3,300,000 in six years. Apparently the sheep in this country reached their largest number about 1910. The number of sheep not on farms and ranges in 1910 was about 400,000.

The census found 26,000,000 swine in the United States in 1840, 33,500,000 swine in 1860, 47,700,000 in 1880, 57,400,000 in 1890, and 62,900,000 in 1900. In 1910 the census changed from June 1 to April 15, and the swine enumerators found only 58,200,000. If, however, the number of swine found at that date is increased to the number estimated to exist on the following 1st of June, the swine on farms in 1910, June 1, probably numbered 69,200,000. In 1910 the swine not on farms numbered 1,300,000. Therefore the total number of swine in this country on and off farms June 1, 1910, was undoubtedly about 70,500,000.

The 58,200,000 swine found by enumerators April 15, 1910, had increased, according to the estimates of the Bureau of Crop Estimates, to 65,400,000 in 1912, but the unusual prevalence of hog cholera in 1913 reduced the number to 58,900,000 in 1914. The next year, 1915, the number was estimated at 64,600,000, and in 1916 at 68,000,000. From the earliest record, therefore, there has been a persistent course of increase of swine in the United States.

MEAT EXPORTS.

Over one-half of the people of the earth eat little meat. The countries which have much surplus of meat for export are all meat-eating countries, and are few in number. Nearly all of these countries derive their surplus beef and mutton from cheap land and the range, and in the United States the surplus pork and pork products are largely derived from corn. Substantially all of the meat surplus countries of the world are Argentina, Australia, Canada, Denmark in the specialty of bacon, Mexico (under peaceful conditions), New Zealand, the United States, and Uruguay. There are other countries that have a relatively small surplus, Paraguay and Madagascar, for instance, and many other countries which export relatively little while importing more, for example, Germany and Italy.

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Substantially the world's export trade in meat and meat products is maintained by nine countries. The total of these exports for these countries reached their highest amount in 1912, and this was 3,861,000,000 pounds. This great quantity, after deducting about 500,000,000 pounds for mutton, was divided between beef and pork in the ratio of about 52 per cent for beef and 48 per cent for pork. Pork has lost its old-time lead in the export trade, but in very recent years shows a tendency to gain on beef.

The production of beef, mutton, and pork throughout the world, outside of China, is estimated to be about 50,000,000,000 pounds a year, dressed weight, including lard, and consequently the export trade of the nine surplus countries, amounting to about 3,861,000,000 pounds in 1912, is only about 7.7 per cent of the entire production; although, of course, it is a much larger fraction of the production of the surplus countries. Meat production and consumption throughout the world being substantially the same, the imports from surplus countries are also about 7.7 per cent of the world's consumption, China being excluded as before.

Argentina and Uruguay together exported 36 per cent of the world's export of meat and meat products in 1912; the United States, 31.1 per cent; Australia and New Zealand combined, 18.7 per cent; and these three great sources of these exports provided 90 per cent of the world's total.

Three-fifths of the world's export trade in beef and its products belonged to Argentina in 1912, about one-fifth to the Australasian colonies, and one-seventh to the United States. By 1914, however, the United States had almost lost its export trade in fresh, chilled, and frozen beef, to be renewed in 1915. Three-fourths of the exports of pork and pork products go from the United States, about one-fifth from Denmark, and about one-twentieth from Canada. The mutton export trade is mostly confined to the two Australasian colonies and to Argentina, the former contributing three-fourths and the latter one-fourth.

MEAT IMPORTS.

The United Kingdom is the most prominent meat-importing country, and thus secured from surplus countries about 40 per cent of its consumption before the European war. Germany held second place, mostly because of fats and oils, and for the same reason the Netherlands held the third place. In 1913 the United States became the fourth importer of meat and meat products among the nations, but these are mostly chilled and frozen beef, with some mutton from South America and Australasia.

MEAT PRODUCTION.

Meat and meat products are far from being the leading class of foods of the world's peoples. The meat production of the world is

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probably 60,000,000,000 pounds or more, including the extra-edible parts of the animal with the dressed weight. The equivalent of this quantity in calories is 62,400,000,000,000. As large as this number is, it is only 7 per cent of the number of calories in the world's rice crop, which is nearly all used for human food. The world's wheat crop has approximately 382,000,000,000,000 calories, or over six times the number for meat; sugar has over 200,000,000,000,000 calories, or more than three times the number for meat; rye, 164,000,000,000,000 calories, or probably more than twice the number for meat in quantity consumed for human food; and potatoes, nearly 100,000,000,000,000 calories, or 50 per cent above the number for meat.

The people of a few countries, comparatively, eat the bulk of the world's meat, and the bulk of the world's meat is produced in a comparatively few countries, some of which are prominent producers, and one of which, the United States, is the principal producer. This country by far leads all other countries in the production as well as the consumption of meat and meat products.

It is estimated that the meat produced in the United States in 1900 reached the grand total of 16,226,000,000 pounds, embracing beef, veal, mutton, lamb, and pork, including lard, but not including extra-edible parts. For 1909 the census figure is 16,940,000,000 pounds. If the extra-edible parts are added, the grand total for 1900 was 18,865,000,000 pounds, and for 1909 it was 19,712,000,000 pounds.

The ratio between slaughter for one year and stock of animals at a certain date in the year has been computed. In the United States the mature cattle slaughtered in 1900 were 46.1 per cent of the stock of cows on hand, and, in 1910, 42 per cent. The slaughtered calves as related to the stock of cows on hand were 20.3 per cent in 1900, and 20 per cent in 1910. For mature cattle and calf slaughter combined, the ratio to number of cows was 66.4 per cent in 1900, and 61.9 per cent in 1910. The sheep slaughter, including lambs, was 44.9 per cent of the stock of ewes in 1900, and 46.1 per cent in 1910. In 1900 the slaughtered swine were 79.8 per cent of the total stock of swine on hand, and 76.9 per cent in 1910.

MEAT CONSUMPTION.

The meat consumption has been ascertained for many countries of the world for as late a year as possible, and this consumption amounts to nearly 50,000,000,000 pounds for a total population of over 500,000,000. The per capita average is 93.3 pounds of beef, mutton, and pork and their products in one year, dressed weight. In the United States the consumption decreased from 181.5 pounds dressed weight per capita in 1900 to 170.6 pounds in 1909. This is by far the leading meat per capita consumption, except in Australia

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and New Zealand, where in 1902 the consumption was 263 and 212 pounds, respectively.

The consumption of meat and meat products, dressed weight, in the United States is estimated to have been 13,792,000,000 pounds in 1900, and according to the census 15,450,000,000 pounds in 1909. Less than one-half of this amount was consumed in Germany in 1913, the most recent year for which the fact is known, or 7,399,000,000 pounds. Russia, except Poland, consumed 6,024,000,000 pounds in 1899, and perhaps reached Germany's consumption by the outbreak of the European war. The fourth country in the world in order of total consumption of meat is the United Kingdom with 5,174,000,000 pounds in 1906, and France is fifth with 3,096,000,000 pounds in 1904.

While the United States is a surplus meat country by a large excess, it became a deficiency country in 1914 and 1915 in the domestic supply of fresh, chilled, and frozen beef, of all beef in 1914, and also in the domestic supply of mutton in 1914 and 1915.

If the gross imports of 1914 may be compared with the consumption of 1909, dressed weight, it is computed that imports of fresh, chilled, and frozen beef were 2.6 per cent of the total consumption of beef excluding veal, and 2.6 per cent in 1915; the gross imports of all beef and beef products in 1914 were 2.7 per cent of the total beef consumption, and 2.7 per cent in 1915. Of the total consumption of mutton including lamb, the gross imports of mutton and lamb were 2.1 per cent in 1914, and 2.6 per cent in 1915.

If the gross imports of beef and mutton including lamb are combined, and the consumption of beef excluding veal and of mutton including lamb are combined, these gross imports were 2.6 per cent of the consumption in 1914, and 2.7 per cent in 1915.

The total gross imports of meat and meat products in 1914 were 1.1 per cent of the total consumption of meat and meat products in 1909, including the extra-edible parts, and 1.2 per cent in 1915, except goat meat; and they were 1 per cent of the production in 1914 and 1 per cent in 1915.

The deficient production of fresh, chilled, and frozen beef was 174,000,000 pounds in 1914, and 14,000,000 pounds in 1915. The deficiency of the total beef and beef products in 1914 was 34,000,000 pounds, or much less than that of fresh, chilled, and frozen beef; in 1915, the deficiency of the preceding year was followed by the surplus of 208,000,000 pounds. The mutton deficiency of 1914 was 8,000,000 pounds; of 1915, 12,000,000 pounds. The surplus of all meat and meat products was 917,000,000 pounds in 1914 and 1,318,000,000 pounds in 1915.

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LOSSES OF MEAT ANIMALS.

The losses of meat animals in the United States from disease and exposure are enormous. Since 1900, from 1,100,000 to 1,475,000 cattle have been lost from disease annually, and from about 600,000 to 1,500,000 cattle have been lost annually from exposure since 1889. Sheep losses from disease have been about the same in number as those for cattle, and considerably larger on account of exposure. Swine losses from disease have gone as low as 2,200,000 in 1894 and as high as 7,000,000 in 1914. This immense loss in 1914 was due mainly to hog cholera. The value of these 7,000,000 hogs at the farm was about $73,000,000, and their potential meat production was sufficient to furnish every family of the United States about 40 pounds of pork.

PRICES OF MEAT ANIMALS AND MEAT.

Prices have been compiled for a large number of countries throughout the world for a period extending back many years. The upward trend of prices of all classes of meat animals and of meat is observable in all countries for which information has been obtained, with perhaps a slight exception in the case of some animal or of some class of meat in here and there a country. The exceptions are inconsiderable and indicate that in these instances the country is, for some special reason, unaffected by the world-wide conditions that are so prominently verified in these price compilations.

The general fact is that meat production has not kept up with the increase of population, and with customary demand by meat consumers. The inevitable measure of this changed relationship between supply and demand is price, and the price compilations that have been made restate in other form substantially what has already been expressed under consideration of number of meat animals throughout the world. Increasing cost of meat production, also, may be regarded as a factor. The United States is not alone in its decline of per capita meat production, but is participating in a world-wide movement.

A comparison of the trend of prices of meat animals at the farm in the United States with the trend of prices of marketed meat animals at Chicago, and of these two tendencies with the trend of the wholesale prices of meat, is made from the mean of 1893–1897 to 1914. The animals represented by the farm prices are of all ages, sexes, and conditions; the Chicago prices represent marketed animals; substantially, the meat of these marketed animals is represented by wholesale prices. Cattle, sheep, and swine are included.

The rate of gain of the rising prices of the farmers' marketed meat animals has not equaled the rate of gain of prices claimed for the entire stock of meat animals at the farm, nor has the rate of gain of

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the rising prices of meat sold at wholesale done so; nor has the rate of gain of the rising prices of meat sold at wholesale, except pork, equaled the rate of gain of prices of marketed meat animals. Perhaps pork, with its susceptibility to change of prices, would make a contrary comparison in another year.

MEAT-PRODUCING CONDITIONS IN MANY COUNTRIES.

In the preparation of this report a study of meat-producing conditions in 13 countries was made. These countries are Argentina, Australia, Brazil, British South Africa, Canada, Chile, Colombia, Denmark, Madagascar, Mexico, New Zealand, Paraguay, and Uruguay. The assembled facts indicate that gradually and at some indefinite future time southern Brazil may rival Argentina; Mexico should eventually produce millions of cattle yearly; Argentina and Uruguay may, if they will, greatly increase their beef production, and Paraguay may follow; weather and water conditions in Australia present formidable obstacles to further extension of cattle and sheep production, but to some extent they may be gradually overcome; Rhodesia has an extensive range area that will yet produce great numbers of cattle, and other subdivisions of British South Africa should make their contribution, while sheep may undergo a change from almost exclusive wool production to a production of mutton and lamb as well, or perhaps to the subordination of wool. Vast range areas are in reserve in the countries mentioned and in Colombia and Chile not only for better utilization but for extension of meat production. In Canada it is increasingly a problem of farm management.

An extraordinary combination of circumstances and factors in all countries, or even in a considerable number of them, to cause a rapid increase of the production of beef, or mutton, or pork, or all, is not to be expected; rather, as a net result, gradual growth and extension, which may or may not equal the rate of increase of the meat-eating population.

PLACE OF THE UNITED STATES AMONG NATIONS.

The United States is preeminent among nations in the magnitude and value of its meat-producing industries. No other nation approaches the 61,441,000 head of cattle on the farms of this country in 1916 except the entire vast Russian Empire, which had 52,000,000 head of cattle in 1913, but these cattle are less productive of meat per head than are those of the United States. This country with 68,000,000 swine on farms has nearly three times as many as Germany, the country next below this one, had in 1913. In number of sheep this country, with 49,000,000 in 1916, is exceeded by Argentina with 80,000,000 and Australia with 83,000,000. Neither Argentina

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nor Australia, however, has enough cattle and swine to produce, with its mutton, as much meat as this country does by a large difference.

The production of beef, mutton, and pork in terms of dressed weight in the United States in 1909 amounted to 16,940,000,000 pounds. If the edible parts not included in dressed weight are included in the statement of meat production, the quantity becomes 19,712,000,000 pounds.

Large exports of meat and meat products still go from the United States. The recent alarm concerning imports was, as a matter of fact, directed toward imports of chilled and frozen beef, without taking into account exports which amounted to 1,196,000,000 pounds of meat and meat products in the fiscal year 1913 and 1,122,000,000 pounds in the fiscal year 1914. During the calendar year 1914 the imports of meat and meat products, mostly chilled and frozen beef, but including also some frozen mutton and various other classes of meat and meat products, amounted to 314,000,000 pounds. No fresh, chilled, or frozen beef worth mentioning was exported in 1914, but the net exports in meat weight were over 800,000,000 pounds, and the gross exports were 1,122,000,000 pounds, or nearly four times the imports. The United States was still the leading exporting nation in meat and meat products until 1913, when it exceeded Argentina by 47,000,000 pounds.

After taking into the reckoning the production of meat and the international trade it is computed that the United States has a larger per capita meat consumption than is possessed by any other country except Australia and New Zealand. This country's average of 171 pounds, dressed weight, per capita in 1909, including babies and other nonmeat eaters, is far above that of other countries that possess the higher averages below the average of the United States, even those that come nearest the United States in per capita consumption of meat. The per capita consumption of the United Kingdom has remained stationary at about 120 pounds a year for the last 20 years and that of Germany at about 112 pounds for the last 11 years.

In pounds of beef, mutton, and pork and their products the United States consumed about 15,450,000,000, dressed weight, in 1909, and the country next below in consumption for one year is Germany with about 7,400,000,000 pounds, dressed weight. Even the great Russian Empire (excluding Poland) was perhaps below Germany in 1899 and consumed in that year only about 6,000,000,000 pounds of meat annually.

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WEALTH DIRECTLY CONCERNED WITH MEAT PRODUCTION IN THE UNITED STATES.

It is possible, partly by estimating and partly by taking figures of the census of 1910, to arrive at the approximate value of the capital directly concerned in the production and distribution of meat and its products in the United States. According to the estimate of the Bureau of Crop Estimates, the value of cattle, sheep, and swine on farms and ranges January 1, 1916, was over $3,332,000,000. The census value of goats in 1910 was over $6,000,000. The census value of cattle, sheep, swine, and goats, not on farms and ranges, in 1910 was over $73,000,000. Partly by applying certain results established by the census of 1900 to the census of 1910 it is determined that the value of the farms and farm property, with live stock as a principal source of income, in 1910 was over $15,000,000,000. The value of the capital of wholesale slaughtering and meat-packing, lard-refining, and oleomargarine establishments in 1910 was over $388,000,000.

The total of the foregoing items of values is $18,800,000,000. No capital employed in the retail meat trade, nor in meat animal transportation, is included, but, on the other hand, considerable capital is included that is devoted to production other than that of meat in the item of live stock farms and farm property. This grand total may be regarded as approximately the value of the capital of meat production and wholesale distribution in this country. Perhaps it is not an excessive estimate, especially if one will bear in mind that meat constitutes nearly one-third of the dietary of the people of this country.

AGRICULTURAL POPULATION OF THE UNITED STATES.

No direct information is afforded by the census with regard to the actual number of persons employed in agriculture in this country and their dependents. It will not do to accept the "rural" population of the census as agricultural; this population lives within political areas outside of incorporated villages and cities with a population of 2,500 or more, and includes a large element of merchants, mechanics, railroad workers, and persons with other nonagricultural occupations, together with their dependents. The census classification of the population by occupations affords the best means of indicating the number of the agricultural population and consequently its fraction of the total population.

One-third of the population having census occupations is agricultural, and the fraction has declined from 83 per cent in 1820 to 77.5 per cent in 1840, 47 per cent in 1870, 44 per cent in 1880, 39 per cent in 1890, 35 per cent in 1900, and 32.4 per cent in 1910. The percentages for 1880 to 1910 have the uniform basis of the census classification of occupations of 1900. These figures do not mean that this

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element of the population has absolutely declined; on the contrary, it was never so large in number as it is to-day, with probably about 33,000,000 men, women, and children in the total of those in agricultural occupations and their dependents.

Agricultural labor, as devoted to production of crops, has gained greatly in effectiveness by means of improved machinery, implements, and processees, and the effectiveness of animal labor has likewise been increased. This large fact permits a relative decline in the agricultural population, as far as crop production is concerned, but the query is raised whether this rule applies in the same degree to meat-animal production. The per capita consumption of crops has long increased and the per capita consumption of meat has decreased. The displacement of meat in the dietary by products of the vegetable kingdom advances slowly but surely.

ANIMALS IN RELATION TO POPULATION IN MANY COUNTRIES.

The various countries are not fully comparable in the matter of meat animals of the same kind, for the reason that the animals are of different varieties and grades and differ in meat production per head. That there are varying degrees of this general fact should be borne in mind.

CATTLE—NUMBER OF ANIMALS IN STOCK.

UNITED STATES.

[Tables 1 and 2.]

TOTAL CATTLE.—The number of cattle on farms was ascertained for the first time in the census of 1840, when nearly 15,000,000 head were counted. The number had increased to 25,600,000 in 1860, to nearly 36,000,000 in 1880, to 51,400,000 in 1890, and to 67,700,000 in 1900, including ranges. At the time of the census of 1910, taken April 15 instead of June 1 as before, 61,800,000 cattle were counted on farms and ranges, but the number would have been about 65,500,000 had they been counted June 1, or about 2,200,000 less than in 1900.

The estimate of the Bureau of Crop Estimates of the number of cattle on farms and ranges is made January 1, but the bureau endeavors to adjust it to the census time basis. As nearly as can be determined, the number of cattle reached its height about 1907, when the estimated number was 72,534,000. According to the estimates of this bureau, the census number of cattle for 1910—61,800,000—declined year by year to 56,500,000 in 1913, and the number remained about the same in 1914, but there was a perceptible increase in 1915, and again in 1916, when the number of cattle on farms and ranges was estimated at 61,441,000. The number of cattle not on farms and ranges in 1910 was nearly 2,000,000.

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The two geographic sections next west of the Mississippi River contained 34,300,000 cattle on farms in 1900, or a little more than one-half of the total for the whole country. By 1914 the number on farms and ranges in these two divisions had declined to 24,660,000, or 42 per cent of the total, a loss of about 10,000,000 head, equal to one-third of the cattle of Argentina. The West North Central group of States lost nearly 5,000,000 of its 20,000,000 cattle; the West South Central division lost nearly the same number of its 14,000,000 cattle, or a larger fraction than the West North Central States did; the East North Central division lost over 1,000,000 of its 10,500,000 cattle. During the same 15 years all of the other divisions of States lost cattle, except the South Atlantic and Pacific.

In 1915, however, there is some recovery of cattle in the two divisions of States next west of the Mississippi River, and this was continued in 1916; the gain of 1916 over 1914 is estimated at 1,776,000 cattle in the West North Central States and 542,000 cattle in the West South Central. New England appears to be slightly gaining, and there are more distinct gains in all other divisions of States.

The decline in the number of cattle seems to have been arrested in 1914, and a turn toward a gradual increase is indicated for 1915 and 1916.

In partial explanation of the decline of cattle on farms and ranges since 1900, it will be remembered that in the great corn belt cattle breeding has largely changed to cattle feeding since 30 years ago. While this change was taking place in the corn belt, range and ranch began to supply feeders cheaper than they could be raised on the farm, or at any rate the farmers more easily bought feeders than they could raise them. But limitations to the production of feeders began to appear, and were found in the enforcement of the no-fence law on the public land, in homesteading, in dry farming, and in the corn belt itself in dairying, in the increasing cost of stockers and feeders, and in neglect to feed roughage.

The turning of a decline in the number of farm cattle into an increase in the corn belt appears to be a matter of changes in farm and animal husbandry, management, and practices; and such changes, pertinent to local conditions, are needed in the South and East.

MILCH COWS.—This class of animals is included because of ultimate beef production. Milk being regarded as more fixed than meat in the family dietary, the number of milch cows in this country has steadily increased from the earliest enumeration in the census of 1850, when the number of these cows on farms was ascertained to have been 6,400,000. The number had increased to 8,600,000 in 1860, and had increased about 50 per cent above 1860 by 1880, and about 100 per cent by 1890, when the number was 16,500,000. The next census, in 1900, showed only a slight increase above 1890,

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or a total of 17,100,000 milch cows on farms, but in 1910 the census found that the increase had been to 20,600,000. The estimate of this department for 1916 is 21,988,000.

Various obstacles have stood in the way of producing milk. Farmers have become more wise with regard to keeping cows that do not pay for their keeping; they have been put to much trouble and expense because of the requirements of sanitary officers in cities; they have been told over and over again that when they sell milk they sell fertilizers; they have had many discouraging experiences with dishonest milk buyers; they have been at a disadvantage in selling milk independently as individuals to collective milk buyers; under conditions that have increased the cost of producing milk, they have often failed to sell at a price that paid the cost of production, or, at any rate, a fair profit above.

Yet dairying has constantly encroached on beef production in large areas of the denser populations, mostly in the North Atlantic States, notwithstanding dairy decrease, and in the North Central States east of the Mississippi River.

The number of dairy cows on farms in New England decreased from 893,000 in 1900 to 818,000 in 1915, but there was an upward turn to 825,000 in 1916. In the Middle Atlantic States the number decreased from 2,603,000 in 1900 to 2,554,000 in 1914, but rose to 2,662,000 in 1916.

In the East North Central States the number of milch cows on farms has increased steadily from the earliest census to 5,163,000 in 1916, and similarly in the West North Central States the steady increase reached 5,708,000 milch cows in 1916.

In the South Atlantic States, milch cows on farms increased, with temporary interruption, to 1,883,000 in 1916. In the East South Central States, the number had grown to 1,628,000 in 1910, followed by a decline to 1,539,000 in 1914, and increased to 1,615,000 in 1916. In the West South Central States the unbroken increase to 2,250,000 milch cows in 1910 was followed by a decline to 2,188,000 in 1914, followed by the high-water mark of 2,311,000 in 1916.

A strong increase of milch cows on farms is observable in the Mountain States, where the total for 1916 was 774,000, and the same fact is true of the Pacific States with a total of 1,047,000 milch cows in 1916. The strong milch cow increase in the two divisions of States last named corresponds with a strong increase in population.

OTHER COWS AND HEIFERS.—Nothing is known of the number of cows and heifers other than milch cows on farms and ranges in this country except for the censuses of 1900 and 1910. In the former year the number of these cows and heifers was 18,700,000; in 1910 it was 19,300,000, an increase of only 3 per cent in 10 years, while popula-

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tion increased 21 per cent. These animals are the breeding stock for beef.

The number of these cows and heifers declined in New England from 1900 to 1910; and also in the Middle Atlantic and the West South Central States; in each of the other groups of States there was an increase, a very noticeable one in the South Atlantic, East North Central, the East South Central, and the Pacific States, but only a small relative increase in the West North Central and Mountain States. A large rate of increase in the Southern States east of the Mississippi River is shown. In the two great divisions west of the Mississippi River, north and south combined, there was a considerable decline in number of cows and heifers other than milch cows from 1900 to 1910.

OTHER CATTLE.—Cattle other than cows and heifers on farms and ranges were numbered in 1900 and 1910, during which decade there was an enormous decline of about one-third, leaving only 21,900,000 in the latter year.

For all other years the class described as "Other cattle" includes all cattle except milch cows, and the statements under the head "Total cattle" substantially apply. Briefly, the cattle other than milch cows numbered 11,000,000 on farms in 1850, 17,000,000 in 1860, 23,500,000 in 1880, 35,000,000 in 1890, 32,000,000 in 1900, 51,600,000 in 1907, 41,000,000 in 1910, 35,900,000 in 1914, and 39,500,000 in 1916, including ranges for 1900 and subsequently.

OTHER COUNTRIES.

[Table 1.]

Many and great difficulties were encountered in compiling the number of cattle, sheep, and swine in the principal countries of the world as far back as 1890. They need not be mentioned, but the general fact should be kept in mind. For some of the countries the number of animals has been determined by census methods; in other countries by local tax officials; in still other countries by estimates that range from good to very poor.

ALGERIA.—Algeria had 1,210,000 cattle in 1887, and the number declined quite uniformly to 993,000 in 1900, since which year the increase has been slow, but on the whole steady, to 1,107,000 cattle in 1912. The herds of that country are a source of some beef supply to France.

The total cows of Algeria increased from 402,000 in 1901 to 440,000 in 1911; but the cattle other than cows remained at a nearly stationary number during the period, with a range from about 650,000 to 680,000.

ARGENTINA.—The number of cattle in Argentina has been about stationary during the last seven years. In 1888 the number was

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22,000,000; in 1895 the number had decreased by 260,000; in 1908 the number was 29,117,000, but in the following year, on account of drought, the number declined to 27,825,000. There was some recovery in the following year, and by 1912 the number of cattle had become 29,016,000. The number estimated for 1913 was 28,500,000 and for 1914, 29,500,000, or 383,000 above the census number for 1908.

Notwithstanding its vast ranges and the remarkable enterprise and progressiveness of Argentine cattlemen, the herds of that country, under the conditions of recent years, have remained at about the same figure. Disease and drought have made some inroads upon the herds, but these causes do not account for the failure of Argentina to increase their number. Doctor A. D. Melvin, Chief of the Bureau of Animal Industry, after a visit to Argentina in the summer of 1913, reported that "while statistics show that Argentina is already slaughtering up to the limit of its present stock of cattle, that country has such great resources for cattle raising that it is easily possible for the stock raisers to bring about a large increase in the meat output if the present prices are maintained." Not only has Argentina been slaughtering cattle to the limit in recent years, but in 1913 there was a slaughter of cows beyond the limit.

The explanation of the stationary number of cattle in Argentina is offered that the rapidly increasing prices and the greatly increased facilities for slaughtering and exporting in recent years have induced cattlemen to oversell to such an extent as to prevent increase of herds, or, as Doctor Melvin says, to slaughter to the limit. Eventually high prices of cattle, enormous available ranges, the extensive raising of alfalfa, and ample facilities for slaughtering and exporting will lead, it would seem, to a great expansion of the beef-producing industry in Argentina; but in recent years the first effects of high prices seem to have been to stop the growth of the industry.

Argentina had 2,164,000 dairy cows in 1908, 16,337,000 other cows and heifers, and 10,615,000 other cattle. The numbers of these classes have not subsequently been ascertained.

AUSTRALIA.—This is another country with stationary cattle herds. The severity of the droughts is much greater than in Argentina, and although Australia has many millions of cattle, yet the number now is about the same as it was 19 years ago.

In 1890 the Australian cattle numbered 10,300,000, and the highest number recorded, 12,312,000, was reached in 1894. Eventually, by 1902, severe and protracted droughts reduced the cattle to 7,000,000, but since that time the increase has been on the whole steady, although slow, to 11,484,000 in 1913.

Australia, as well as Argentina, has been feeling the effects of high prices of cattle in recent years, and the result apparently has

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been the same; that is to say, cattle have been slaughtered to the limit, or, if increase of cattle should be expected, beyond the limit.

The dairy cows of Australia have steadily increased from 1,327,000 in 1901 to 2,079,000 in 1913.

AUSTRIA-HUNGARY: AUSTRIA.—Although the number of cattle in Austria increased from 8,600,000 in 1890 to 9,500,000 in 1900, a decline followed in subsequent years, so that in 1910 the number was 9,160,000.

During this period of 20 years the number of all cows increased from 4,300,000 to 4,900,000, but the number of other cattle declined from 4,400,000 in 1890 and 4,800,000 in 1900 to 4,258,000 in 1910. The number of dairy cows is not separately stated, but presumably the increase of cows was in dairy cows.

AUSTRIA-HUNGARY: HUNGARY.—On the other hand, in the other Kingdom of the dual monarchy—Hungary—there has been a perceptible increase of cattle since about 20 years ago. The number in 1884 was 5,600,000, in 1904 it was 6,800,000, in 1908 it was 7,337,000, and in 1911 it was 7,319,000. Apparently the cattle were becoming stationary in number.

BELGIUM.—Belgium is another country that has reached apparently a stationary number of cattle. As far back as 1895 that Kingdom had 1,400,000 cattle; in 1900 it had 1,700,000 cattle; in 1910 it had 1,880,000, and in 1913 it had 1,894,000. The increases were due largely to the increased number of dairy cows, of which Belgium had 937,000 in 1913.

BRAZIL.—Little confidence can be placed in reports of the number of cattle in Brazil. It was estimated that there were 25,000,000 cattle in 1910, and that the number had increased to 30,000,000 in 1913 and 30,705,000 in 1914. Brazil therefore has about as many cattle as Argentina, with three times the population, and no exports of beef except a considerable quantity of jerked beef and a small beginning of a frozen or chilled beef export. It seems like a poorly productive industry compared with that of Argentina, United States, Australia, and many other countries. The explanations of this are that most of the cattle are of low beef grade and that cattle diseases, even when not fatal, prevent cattle from reaching a slaughtering condition, except for jerked beef, and at the same time there is a want of a system of marketing, of facilities for slaughtering, and of means of transportation—domestic and ocean. When, however, suitable cattle are supplied in a fit condition for slaughtering for something better than jerked beef, the facilities for utilizing them will doubtless be provided, and a beginning has been made.

BRITISH EAST AFRICA.—This colony has made considerable progress in establishing the cattle industry. By 1908, 1,156,000 cattle were estimated, and the number had grown to 1,526,000 four years

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later, in 1912. Description of the conditions in this colony indicates that the number of cattle there should increase at a moderate rate and eventually reach large proportions.

BRITISH SOUTH AFRICA.—The conditions found in this vast region have made the cattle industry uncertain and sometimes disastrous. These are discussed in the special treatment of British South Africa on subsequent pages. Briefly, it would seem probable that cattle raising within some large areas of these colonies will be permanently successful and reach very large proportions. Progress, however, may be slow.

The census number of cattle in British South Africa was 4,062,000 in 1904 and 7,176,000 in 1911. The indicated increase was not normal, for the reason that it was largely, perhaps mostly, due to the recovery from the Boer War.

BULGARIA.—Diminishing cattle from 1905 to 1910 characterizes this country. In 1892 the number was 1,400,000; in 1900 it was 1,600,000; in 1905 it was 1,700,000; and in 1910, 1,600,000. The decline of 90,000 during the last five years mentioned is more than equaled by the decline of 160,000 cows and heifers other than dairy cows. Inferentially the dairy cows increased.

CANADA.—Whatever practical cattle-range area Canada has is passing into farm conditions under the immigration of farmers and the multiplication of farms on new land. Since 1913 the cattle industry of Canada has suffered a decline.

The census of 1891 found 4,100,000 cattle on farms and ranges, the census of 1901 found 5,400,000 cattle, and the census of 1911 found 6,500,000 cattle. The official estimate of the number of cattle in 1912 was 6,400,000; in 1913 it was 6,656,000; in 1914, 6,000,000; and in 1915, 6,066,000.

As in many other countries, the number of dairy cows in Canada steadily increases. In 1891 the number was 1,857,000; in 1911, 2,600,000; in 1914, 2,673,000; and in 1915, 2,667,000. On the other hand, the cattle other than dairy cows declined from 3,939,000 in 1911 to 3,364,000 in 1914, and the estimate for 1915 is 3,399,000.

Beef cattle in Canada have been depleted since 1913 from four causes: Increased exports to the United States; the extra demand for beef since the summer of 1914 on account of the European war; change from range to farm conditions; and the high prices of beef cattle and wholesale beef, which apparently have encouraged overselling by cattle raisers.

CHILE.—This is one of the South American countries for which the estimates of the number of cattle are to be taken with considerable uncertainty. Apparently there were 863,000 cattle in Chile in 1901, but according to the estimate the number had grown to 2,675,000 in 1906. If this number for 1906 is to be accepted as approximately

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correct, the number of cattle declined to 1,635,000 in 1910, four years later. The estimates subsequent to 1910 show an increase to 1,190,000 cattle in 1913, or about 775,000 cattle below the figure of 1906. The estimates for dairy cows in recent years are nearly 200,000.

COLOMBIA.—Little dependence can be placed on the estimates of cattle in this country. As far back as 1893 it was supposed that the cattle numbered 2,800,000, followed by an increase to 3,465,000 in 1896. By 1909 the estimate did not exceed 4,000,000, but six years later, in 1915, there is an estimate of 7,000,000.

Notwithstanding the untrustworthiness of the foregoing estimates, the general fact seems to be that the number of beef cattle in Colombia is perceptibly increasing.

CUBA.—The record for Cuba extends back to 1891, when the estimated number of cattle on that island was 2,456,000, and the number remained about stationary until the insurrection against Spain, which was terminated by the war of the United States against Spain in 1898. The census taken by the United States in 1899 found only 376,650 cattle on and off farms in Cuba. The estimates in subsequent years indicated a steady increase until 1910, when it is supposed that there were 3,212,000 cattle on the island. Two years later the cattle had fallen away from that figure by about 400,000 head. The indication is that the number of Cuban cattle has begun to decline, but in the absence of estimates for years subsequent to 1912 the basis for this supposition is merely an indication.

DENMARK.—The statistics of the different kinds of cattle in Denmark are full and precise and illustrate the progress that can be made in the beef as well as the dairy industry under intelligent and scientific farm management.

The total number of cattle in Denmark has increased from 1,696,000 in 1893 to 1,840,000 in 1903, and to 2,254,000 in 1909. During this period of 16 years dairy cows increased from 1,000,000 to 1,300,000; the other cows and heifers increased from 246,000 to 354,000; and the number of other cattle grew from 439,000 to 618,000.

It is observed that the number of cattle in each one of the three classes (dairy cows, other cows and heifers, other cattle) increased throughout the entire period. In other countries, where dairy cows are shown, their number has almost invariably been increasing, but this increase has by no means always been associated with increase of beef cattle.

FINLAND.—The thrifty people of this semi-independent part of the Russian Empire have steadily maintained about the same number of cattle for many years. The increase has been about 268,000 in the 20 years from 1890 to 1910, or from 1,305,000 to 1,573,000. This increase, however, is found almost entirely in the number of cows, since during the 20 years the number of cattle other than cows increased only about 53,000.

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The reader may observe that each country seems to have a practical limit to its number of cattle, determined by the agricultural and economic systems and conditions. In the older countries the changes in the various conditions do not amount to enough within short periods of time to increase or decrease appreciably the number of cattle, and in some countries this uniformity is prolonged for a long period of years, as in Finland.

FRANCE.—This is another country with a nearly stationary balance of agriculture. The 13,600,000 cattle of 1890 had become only 14,800,000 in 1913, and but slight fluctuations are found in the intermediate years. This increase was due entirely to the increase of cows, which grew in number from 6,500,000 in 1890 to 7,800,000 in 1913, during which period the number of other cattle imperceptibly declined.

The policy of France has been to make the people as nearly independent as possible of other countries in the supply of food, and this policy has been on the whole a remarkably successful one, having in its favor, of course, a population scarcely increasing in number. With a small supplementary supply of mutton from Algeria and of beef from Madagascar, France has managed to produce substantially its entire meat supply, and has been noticeably deficient only in the domestic supply of beef and pork fats and oils.

GERMAN EAST AFRICA.—In this colony the cattle have rapidly increased in recent years as they did in the neighboring colony of British East Africa. From 1905 to 1911 the cattle nearly trebled and their number in the latter year reached 1,500,000.

GERMANY.—From 1892 to 1907 the cattle industry of Germany was promoted so as to cause an increase from 17,600,000 head of cattle to 20,600,000 head. Since that year, however, the number of cattle has remained about stationary.

Farm management in Germany has not confined the increase in the number of cattle to an increase in dairy cows as in some other countries, but has seen to it that there should be an increase in cattle other than dairy cows and especially in cattle other than cows.

From 1892 to 1907, the latest year for which information is available, the number of cows and heifers increased from 9,946,000 to 10,967,000, or a little over 1,000,000; while during the same period the number of cattle other than cows and heifers increased from 7,610,000 to 9,664,000, or over 2,000,000—twice as many in the increase as in the case of cows and heifers.

GREECE.—This country has about 400,000 cattle, and the number appears to be fixed by stationary agricultural conditions.

ITALY.—During the 18 years from 1890 to 1908 the number of cattle in Italy increased from 5,000,000 to 6,200,000. The number has not been ascertained for any year since 1908, and there is no

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information with regard to the number of dairy and other cows, nor of other cattle.

JAPAN.—Under the fixed conditions of agriculture and animal husbandry in this empire, cattle increased but little, if at all, during short periods of years and have increased only from 1,000,000 in 1890 to 1,400,000 in 1912. This increase is due mostly to increase of cows, which gained from 614,000 in 1890 to 922,000 in 1912. During this period of 22 years other cattle increased less than 50,000. The dense population of Japan and the intensive agriculture, permitting the possession of relatively few cattle, verify the fact that dependence for food is mainly on crops and fish.

MADAGASCAR.—The growing and promising importance of this large island as a source of meat supply has not attracted attention outside of France. The cattle are of the cebu breed and numbered 2,000,000 in 1898 and 5,500,000 in 1912. A continuation of increase is expected. It is a surprise to observe that Madagascar, in number of cattle, is roughly comparable with Italy, Canada, Paraguay, Cuba, Mexico, Spain and Portugal combined, and Norway, Sweden, and Denmark combined, although in beef grades there is not a similar comparability.

MEXICO.—Little is known about the number of cattle in Mexico. A census was taken in 1902, which reported 5,142,000 cattle.

NETHERLANDS.—A steady increase of cattle is found in this country. The number increased from 1,500,000 in 1890 to 2,000,000 in 1910, but this increase of 500,000 was due mostly to increase of cattle other than dairy cows. The dairy cows gained from 900,000 in 1890 to 1,068,000 in 1910.

NEW ZEALAND.—This country possessed 2,000,000 cattle in 1911, and the number had grown from 800,000 in 1891. The conditions attending the raising of beef cattle have prevented any marked increase, but have sustained a moderate and steady rate of increase with slight exceptions since 1891.

Dairy cows have increased from 207,000 in 1891 to 634,000 in 1910, and cattle other than dairy cows increased from 772,000 in 1896 to 1,386,000 in 1911. Therefore the dairy cows had a greater rate of increase than other cattle had.

NORWAY.—This country has apparently reached nearly stationary conditions. From 1890 to 1910 the cattle increased from 1,006,000 to 1,134,000.

PARAGUAY.—Prominent fluctuations appear in the record of cattle in this country, on account of droughts and cattle diseases. According to imperfect estimates, Paraguay had 862,000 cattle in 1890, and 2,103,000 in 1896. The next year found a loss of 329,000 head. A census was taken in 1899 and 2,283,000 cattle were found. A marked increase has followed, with an estimate of 5,500,000 cattle in 1908. The latest estimate, which is for 1912, places the number

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at only 3,500,000. Experience in cattle raising in Paraguay has so far been filled with uncertainties.

PORTUGAL.—Little information is provided with regard to number of cattle in this country. In 1906 the estimate was 700,000, and two years later 857,000.

ROUMANIA.—Since 1890 the number of cattle in this country has been about stationary at 2,500,000 to the beginning of the first Balkan War. The gain from 1890 to 1911 was less than 200,000.

RUSSIA, ASIATIC.—This vast region is practically a new country in cattle raising, and has possibilities too enormous to be estimated. From 1905 to 1911 the number of cattle increased from 5,600,000 to 14,700,000. It is true that much of this increase was due to the establishment and expansion of dairying, and the manufacture of butter largely for export, but this by no means fully accounts for this high rate of increase of cattle.

RUSSIA, EUROPEAN.—Notwithstanding the vast expanse of agricultural land in this country, the number of cattle has hardly increased since 1899. In 1890 the number was 28,500,000, in 1899 it was 38,700,000, in 1905 it was 39,500,000, and since that year there was a decline to 34,600,000 in 1912, followed by an estimate of 37,000,000 in 1913, including Northern Caucasia, which had not previously been included. European Russia, therefore, presents the phenomenon of decreasing cattle production since 1905, but at the beginning of the European war it appeared to be perhaps slightly increasing.

SERVIA.—A country of fixed conditions in which the number of cattle has not increased since 1900, although the number increased 138,000 from 1890 to 1900, or from 819,000 to 957,000. The estimate for 1910 is 957,000.

SPAIN.—A very moderate rate of increase may be perceived in the number of cattle in this country. It increased from 2,200,000 in 1891 to 2,452,000 in 1908, and 2,562,000 in 1912.

SWEDEN.—This is another country with conditions that change but little in their effect on the number of cattle. The cattle in 1911 numbered 2,700,000, a gain of less than 300,000 since 1890, and this gain is found almost entirely in the number of cows.

SWITZERLAND.—Another country apparently with conditions that are nearly fixed. As far back as 1886 the number of cattle was 1,213,000, whereas in 1911 it had grown only to 1,443,000, a gain of only 230,000 in 25 years. According to the estimates, Switzerland presents the unusual phenomenon of decreasing cows and heifers during this long period, and especially a marked decrease since 1906; while, on the other hand, the increase in the number of cattle other than cows and heifers is conspicuous.

UNITED KINGDOM.—A full and reasonably accurate record shows a gain of only 1,147,000 cattle in the Kingdom of Great Britain and

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Ireland from 1890 to 1913, in which latter year the cattle numbered 11,937,000. The cows and heifers of this latter year numbered 4,318,000, and the other cattle 7,619,000. Substantially the same rate of increase is found in cows and heifers as in other cattle. It will be remembered that England is a great breeding ground for the supply of pure-bred cattle to the United States, Canada, Argentina, Uruguay, Australia, New Zealand, and other countries.

URUGUAY.—This very promising cattle country had 8,200,000 head of cattle in 1908, according to the census of October 12. Eight years before 1908 the census found 6,800,000 cattle, and the official estimate for 1893 placed the number at 5,500,000. There has been a steady increase of cattle in this country at a strong rate. Many cattle have been sent to Argentina for slaughter, but slaughtering with refrigeration of beef for export has begun in Uruguay, and the industry expects a continuation of expansion for an indefinite time. In 1908 the number of cattle was more than one-quarter as many as in Argentina, and the supposition is that the number has considerably increased since that year, while Argentina's number has remained stationary.

According to the census of 1908, there were 566,000 dairy cows in Uruguay, 3,778,000 other cows and heifers, and 3,849,000 other cattle.

VENEZUELA.—The estimates of cattle in this country are so untrustworthy as hardly to be worthy of quoting. The Statesman's Yearbook reported 8,500,000 cattle in 1888, from 4,000,000 to 5,000,000 in 1895, and 2,000,000 in 1900. The Bulletin of the Pan-American Union asserts that in 1909 the cattle numbered 6,000,000. A general fact, however, may be accepted, and that is that this country contains a large number of cattle, perhaps half as many as Uruguay, or one-sixth as many as Argentina. However, this country has not yet begun to figure in the world's fresh-beef trade, and is still only an exporter of beef cattle and jerked beef.

CATTLE—PER CAPITA OF THE POPULATION.

[Table 3.]

When one turns from the absolute number of cattle in the many countries that have been considered to the number relative to the population, the import of the narrative changes. In some of the countries there has been a decrease of cattle absolutely in recent years, in other countries a stationary number, and in other countries increases small and great; but when the number of cattle is related to the number of the people in all of the countries for all of the years, it becomes evident that the world is diminishing its dependence upon beef for its food.

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UNITED STATES.

TOTAL CATTLE.—The farms and ranges of this country had a larger ratio of cattle per capita of the population in 1900 than in any other year, as far as ascertained. The ratio for that year was 0.89 of 1 animal, and this approximately indicates the period of the greatest expansion and utilization of the range. If, however, the earliest animal census year, 1840, is considered, a ratio of 0.88 of 1 animal is found, barely below the ratio for 1900, but the earlier year was a time when meat was a much larger fraction of the national dietary than in 1900, and besides in the latter year an immense amount of beef and beef products was exported.

Taking the census years in order, the ratio of cattle per capita fell from 0.88 of 1 animal in 1840 to 0.77 of 1 animal in 1850, but there was some recovery to 0.81 of 1 animal in 1860. In 1880 the comparatively low ratio of 0.72 of 1 animal is found, but afterwards the ratio rapidly rose to 0.82 of 1 animal in 1890, and to 0.89 of 1 animal in 1900. In 1910 the census was taken April 15 instead of June 1, and if the census number of cattle in 1910 be increased to a June 1 basis, the ratio to population becomes 0.71 of 1 animal, or a lower average than has been ascertained for any previous census except 1870.

On the basis of April 15 the census of 1910 showed a per capita cattle ratio of 0.67 of 1 animal, and the estimates of the Bureau of Crop Estimates for subsequent years show a continual decline to 0.57 of 1 animal in 1914, but there was an indication of some recovery in 1915, when the estimate indicated a per capita cattle ratio of 0.58 of 1 animal, and in 1916 with a ratio of 0.60 of 1 animal.

MILCH COWS.—Milch cows also have declined in comparison with the population. In 1850 there was 0.28 of 1 milch cow per capita, and after some fluctuations the ratio declined to 0.22 of 1 animal in 1910. The estimates of the Bureau of Crop Estimates indicate a subsequent decline to 0.20 of 1 animal in 1915, followed by recovery to 0.22 of 1 animal in 1916.

OTHER COUNTRIES.

ALGERIA.—From 1887 to 1912 the number of cattle per capita of the population decreased from 0.31 of 1 animal to 0.20, with a uniform diminution to 1907 and with a stationary ratio afterwards. The cows also diminish per capita.

ARGENTINA.—At the time of the census of 1888 there were 5.9 cattle per capita; the census of 1895 announced 5.5 cattle; and the census of 1908 4.7 cattle. The estimates of the national department of agriculture made annually show a diminishing number of cattle per capita from year to year, with a ratio of 3.6 cattle for 1914.

AUSTRALIA.—In 1890 there were 3.3 cattle per capita, in 1892 3.6 cattle, in 1902 1.8 cattle, in 1910 and 1911 2.7 cattle, and in 1913 2.4

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cattle. The ratio increased to 1892, declined steadily to 1902, increased steadily to 1911, and afterwards declined. At the present time a decline in per capita number of cattle is the tendency, and there is now a decline as compared with 1890 to 1899.

Dairy cows increased from 0.35 of 1 animal per capita in 1901 to 0.48 of 1 animal in 1911, but since that year the decline has been to 0.43 of 1 animal in 1913.

AUSTRIA-HUNGARY: AUSTRIA.—From 1890 to 1910 the ratio of cattle to population is a story of continuous decline, the ratio for 1890 being 0.36 of 1 animal, and for 1910, 0.32. During the same time the cows declined from 0.18 of 1 animal to 0.17.

AUSTRIA-HUNGARY: HUNGARY.—In Hungary there seems to be a nearly stationary ratio between cattle and population since 1884. In that year the ratio was 0.34 of 1 animal, and in 1909 and 1911 it was 0.35, the intermediate years showing slight fluctuations.

BELGIUM.—From 1900 to 1913 there was an almost stationary ratio between cattle and population at 0.25 of 1 animal, and similarly the ratio for dairy cows was 0.12 of 1 animal.

BRAZIL.—Subject to doubts concerning the accuracy of the estimates of cattle in Brazil, the per capita ratios are 1.11 animals in 1910 and 1.23 animals in 1913 and 1914.

BRITISH EAST AFRICA.—The ratio of cattle to population in this colony increased from 0.15 of 1 animal in 1908 to 0.23 in 1912.

BRITISH SOUTH AFRICA.—This region also presents an increasing ratio of cattle to population, or according to the census 0.78 of 1 animal per capita in 1904, and 1.18 animals in 1911.

BULGARIA.—The declining ratio of cattle to population is shown by the four censuses from1892 to 1910, during which period the ratio of cattle to population declined from 0.43 of 1 animal to 0.37.

CANADA.—1908 was the culminating year in this country in regard to the per capita number of cattle. The ratio was 0.85 of 1 animal in 1891, and this grew to 1.13 animals in 1908, after which there was a decline that was broken only once to 0.75 of 1 animal in 1914.

A similar course of increasing ratio to 1908, followed by a decreasing one, is observed in the case of milch cows.

CHILE.—As has already been remarked as to the uncertainty of the cattle estimates for Chile, little dependence can be placed on the per capita ratios. There would seem, however, to be a nearly uniform ratio of about 0.5 of 1 animal per capita from 1910 to 1913. The dairy cows are apparently about 0.06 of 1 animal per capita.

COLOMBIA.—Subject to doubt concerning the estimates of cattle for this country, the per capita ratio for 1893 is 0.65 of 1 animal; for 1896 it is 0.77 of 1 animal; for 1909 it is 0.76 of 1 animal; and for 1915 it is 1.27 animals.

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CUBA.—Previous to the Cuban insurrection of about 20 years ago, the per capita number of cattle on this island was about 1.4 animals, but the ratio declined quickly and enormously to 0.24 of 1 animal in 1899, when the census was taken by the United States. After that year the ratio steadily ascended, year by year, to 1.44 animals in 1910, subsequent to which year a decline appears to 1.21 animals in 1912.

DENMARK.—A declining ratio of cattle per capita appears from 1893 to 1903, showing a decline from 0.77 of 1 animal to 0.73; but the ratio for 1909 made a notable gain to 0.83 of 1 animal, or a larger ratio than existed 16 years before. A similar trend is observable in the case of dairy cows; their ratio per capita was 0.46 of 1 animal in 1893, 0.43 in 1903, and 0.47 in 1909.

FINLAND.—Although this country seems to have reached stationary conditions in recent years, a decline in per capita number of cattle appears upon going back as far as 1890. In that year the ratio was 0.55 of 1 animal, and this remained about stationary to 1900, after which there was a decline to about 0.50 or 0.51 of 1 animal per capita to 1910. A similar movement of ratio is shown for cows.

FRANCE.—Subject to some small fluctuations the per capita number of cattle in this country increased from 0.35 of 1 animal in 1890 to 0.38 in 1901 and 1902, after which years the ratio remained at 0.36, with one exception to 1911, and then follow two years with a ratio of 0.37 of 1 animal. From first to last France has increased its per capita ratio of cattle a little during the period of 23 years. A similar course of per capita ratios is observable in the case of cows.

GERMAN EAST AFRICA.—After the per capita number of cattle had remained at 0.08 of 1 animal from 1903 to 1905, the ratio jumped to 0.2 of 1 animal in 1911.

GERMANY.—A steady decline of ratio of cattle to population appears from 1892 to 1913, the ratio for the former year being 0.35 of 1 animal and for the latter year 0.31.

GREECE.—The little that is known for this country does not warrant an inference with regard to the trend of the per capita number of cattle; the ratio for 1902 was 0.16 of 1 animal and for 1912 it was 0.15.

ITALY.—During a period of 18 years or from 1890 to 1908 the per capita number of cattle in this kingdom increased from 0.17 of 1 animal to 0.18.

JAPAN.—The comparatively few cattle in this country have remained almost constantly at 0.03 of 1 animal per capita of the population from 1890 to 1912 and the cows have remained at 0.02 of 1 animal.

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MADAGASCAR.—The development of the beef cattle industry and in a less degree of the slaughtering industry on this island has caused a rapid increase of cattle per capita. In 1898 the ratio was 0.89 of 1 animal, in 1907 it was 1.29 animals, in 1909 it was 1.37 animals, in 1910 and 1911 it was 1.47 animals, and in 1912 the ratio was 1.7 animals.

MEXICO.—For the solitary year for which information is possessed, 1902, the per capita ratio of cattle was 0.37 of 1 animal.

NETHERLANDS.—There was a decline of per capita number of cattle in the Netherlands, subject to some fluctuations, from 0.34 of 1 animal in 1890 to 0.31 of 1 animal in 1904. During this period the number of animals was taken in December, but in 1910 the number was determined in June and the per capita ratio was 0.34 of 1 animal, or slightly greater than in 1904.

The number of cows per capita has declined from 1890 to 1910, or from 0.2 to 0.18 of 1 animal.

NEW ZEALAND.—The ratio of cattle to population constantly increased on this island from 1891 to 1906, or from 1.24 animals to 2.05 animals; a decline followed to 1.85 animals in 1909, and the ratio for 1911 was 2.01 animals.

Dairy cows have increased per capita from 0.33 of 1 animal in 1891 to 0.63 of 1 animal in 1911, without showing the fluctuations appearing in the case of other cattle.

NORWAY.—From 1890 to 1900 the per capita number of cattle declined from 0.5 to 0.42 of 1 animal, but an increase followed to 0.47 of 1 animal in 1907 and 1910.

PARAGUAY.—According to the census of 1899, there were 3.61 cattle per capita of the population. Subject to some doubts as to the accuracy of the estimates of cattle subsequent to that year, it appears that the per capita ratio in 1912 was 4.38 animals.

PORTUGAL.—The only years for which information is possessed are 1906 and 1908, for which the per capita number of cattle was 0.13 and 0.16 of 1 animal, respectively.

ROUMANIA.—The ratio of cattle to population has varied in this country from 0.47 of 1 animal in 1890 to 0.37 in 1896, to 0.42 in 1900, and to 0.38 of 1 animal in 1911.

RUSSIA, ASIATIC.—From 1905 to 1910 the per capita ratio of cattle increased from 0.26 of 1 animal to 0.59, but the ratio fell to 0.54 of 1 animal in 1911.

RUSSIA, EUROPEAN.—From 1890 to 1913 the per capita number of cattle declined within this vast region, and the decline is more marked in recent years. In the former year the ratio was 0.32 of 1 animal, in 1912 and 1913 it was 0.25.

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SERVIA.—This is another country with a declining ratio of cattle per capita. This ratio was 0.38 of 1 animal in 1890 and in 1900, it was 0.36 of 1 animal in 1905, and 0.33 of 1 animal in 1910.

SPAIN.—This country had a per capita ratio of cattle varying only from 0.11 to 0.13 of 1 animal from 1891 to 1912, with the larger ratios in the last two years.

SWEDEN.—A remarkable uniformity appears in the full annual statement extending from 1890 to 1911. The range of ratio is from 0.48 to 0.52 of 1 animal.

SWITZERLAND.—In 1886 this country had 0.42 of 1 animal in its ratio of cattle to population, and the ratio remained about the same to 1906, but in 1911 it fell to 0.38 of 1 animal.

UNITED KINGDOM.—A country of remarkable uniformity in its relation of cattle to population, although in the long period of years extending from 1890 to 1913 a slight decline is observable. In the earlier years of the period the ratio was about 0.29 or 0.30 of 1 animal and this gradually fell to 0.26 of 1 animal in recent years.

The ratio of cows and heifers slowly declined from 0.11 of 1 animal in 1890 to 0.09 in 1913.

URUGUAY.—The record presents notable fluctuations, but among them it appears that according to the census of 1900 the per capita number of cattle was 7.5, and in the census of 1908, 7.9.

VENEZUELA.—According to the Bulletin of the Pan-American Union there were 2.23 cattle per capita of the population of Venezuela in 1909.

CATTLE—COMPARISON OF COUNTRIES.

[Tables 1 and 3.]

NUMBER OF CATTLE.

The 40 countries for which the number of cattle is given for varying periods of time do not include China, British India, the Turkish Empire, and many small countries that possess comparatively few cattle.

The United States is clearly the leading country of the world in number of cattle. The farms and ranges of 1916 possessed 61,441,000 cattle. If also the cattle not on farms and ranges, nearly 2,000,000, as found in 1910, are added, the total number of cattle in the United States in 1915 is about 63,500,000. According to the latest information, the Russian Empire possesses 52,000,000 cattle, and far below that country is Argentina with 29,500,000 cattle. An official estimate gives Brazil 30,700,000, but this may be excessive. Germany's cattle in 1913 numbered 21,000,000, France's 15,000,000, the United Kingdom's 12,000,000, and Australia's 11,500,000. No other country

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of the 40 possesses as many as 10,000,000 cattle, unless Austria and Hungary are combined, the total for both of these subdivisions of the dual empire being 16,500,000.

An important general fact appears upon an examination of the record of the number of cattle in the various countries for recent years, say since about 1907, and this general fact is that in most of the countries the number of cattle in these recent years is about stationary; in a much smaller list of countries, now (1916) including the United States, the number of cattle is increasing; and in Canada the number of cattle is decreasing.

The more prominent countries in which cattle are increasing are the United States, in 1916, after half a dozen years of sharp decline, Asiatic Russia, and Uruguay, and among the less important countries are Denmark, Madagascar, and the Netherlands. Possibly New Zealand should be in this list. The least important countries in this list at the present time are British East Africa, British South Africa, and German East Africa. In no other countries in the world, as far as is ascertained, are cattle increasing in number.

It is not always easy to form a judgment as to whether cattle are increasing or diminishing or remaining stationary in number, but approximately it appears that a stationary condition exists in the important countries of Argentina, Australia, Austria-Hungary, France, Germany, the United Kingdom, and possibly European Russia. The countries of less importance in this list are Algeria, Belgium, Bulgaria, Chile, Cuba, Finland, Greece, Paraguay, Servia, Spain, Sweden, and Switzerland.

PER CAPITA CATTLE.

Countries that possess a certain order of importance in number of cattle do not retain that order when the number of cattle per capita of the population is considered. It is to be remembered that the countries differ in meat production per head for the same general kind of animals. According to the best information, the leading country of the 40 in number of cattle per capita of the population is Uruguay with 7.9 head of cattle in 1908. Next in order stands Paraguay with 4.4 cattle, Argentina with 3.6 cattle, Australia with 2.4 cattle, Venezuela with 2.2 cattle, and New Zealand with 2 cattle.

In a group below the foregoing stand: Madagascar with 1.7 cattle, Colombia with 1.27 cattle, Brazil with 1.23 cattle, Cuba with 1.21 cattle, and British South Africa with 1.18 cattle. The countries in the group of those possessing one-half to 1 animal are, in order: Denmark with 0.83 of 1 animal, Canada with 0.75 of 1 animal, the United States (1916) with 0.60 of 1 animal, Asiatic Russia and Chile with 0.54 of 1 animal, and Finland with 0.51 of 1 animal. All other coun-

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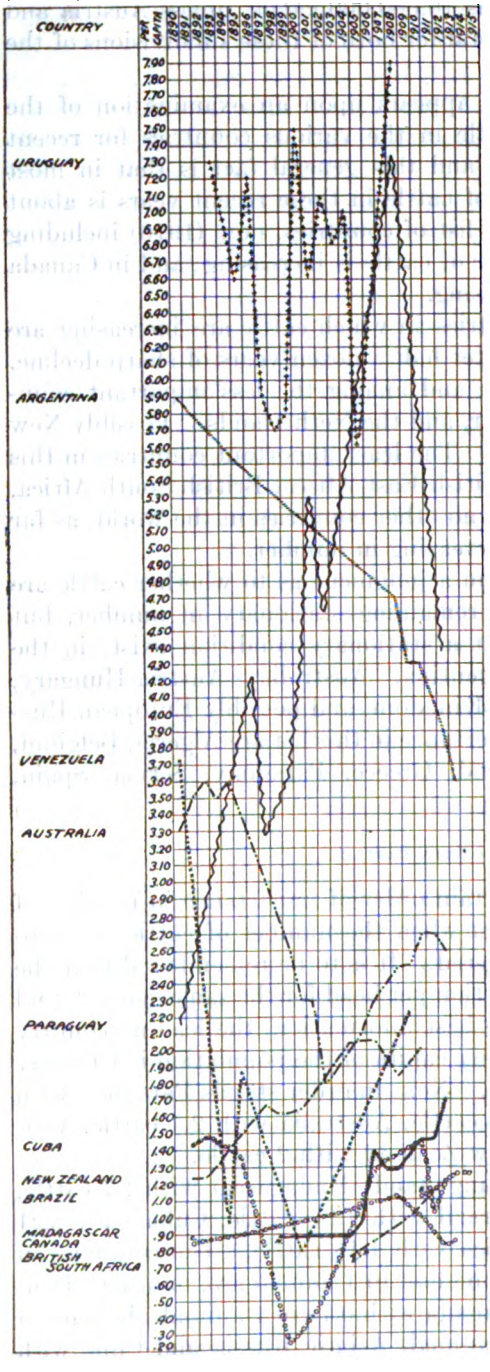

FIG. 1.—Number of all cattle per capita of population in specified countries (Table 3).

tries of the 40 not mentioned above possess less than one-half of 1 animal per capita of the population.

The general decline of cattle in recent years in absolute numbers throughout the world is accentuated when comparison is made with population. In only a few countries, most of them relatively unimportant, except the United States (1916), are cattle increasing per capita of population. These are the United States (1916), Uruguay, possibly Asiatic Russia, Madagascar, Denmark, British East Africa, British South Africa, and German East Africa.

The list of countries in which the per capita cattle are decreasing contains many important ones, and in this list are Argentina, Australia, Austria, Bulgaria, Canada, Cuba, Germany, New Zealand, European Russia, and Servia.

The list of countries in which the per capita ratio of cattle remains about the same in recent years is a longer one than either of the two foregoing ones, and includes Algeria, possibly Hungary, Belgium, possibly Chile, Finland, possibly France, possibly Greece, Japan, the Netherlands, Norway, Paraguay, Spain, possibly Switzerland, and the United Kingdom.

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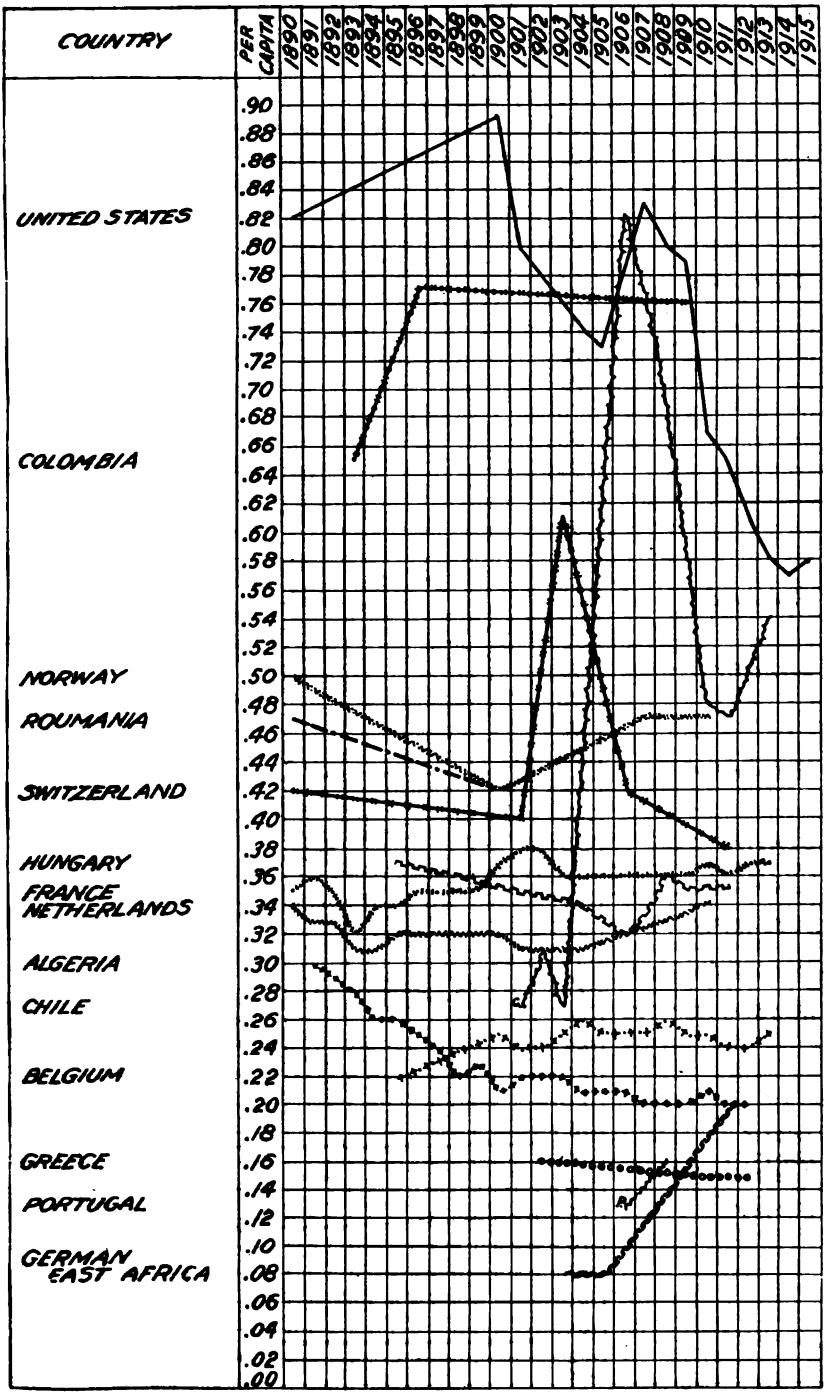

FIG. 2.—Number of all cattle per capita of population in specified countries (Table 3)—Continued.

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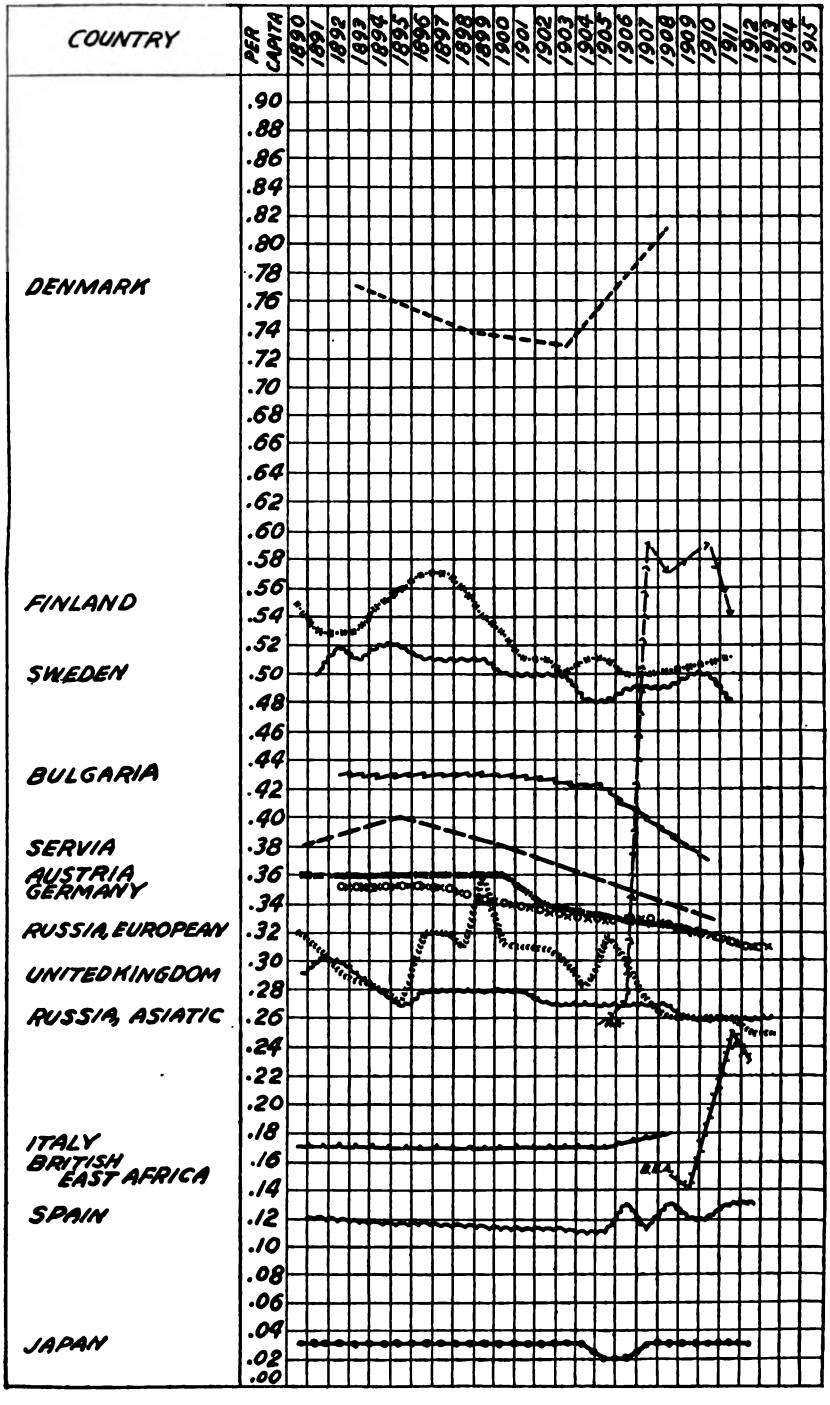

FIG. 3.—Number of all cattle per capita of population in specified countries (Table 3)—Continued.

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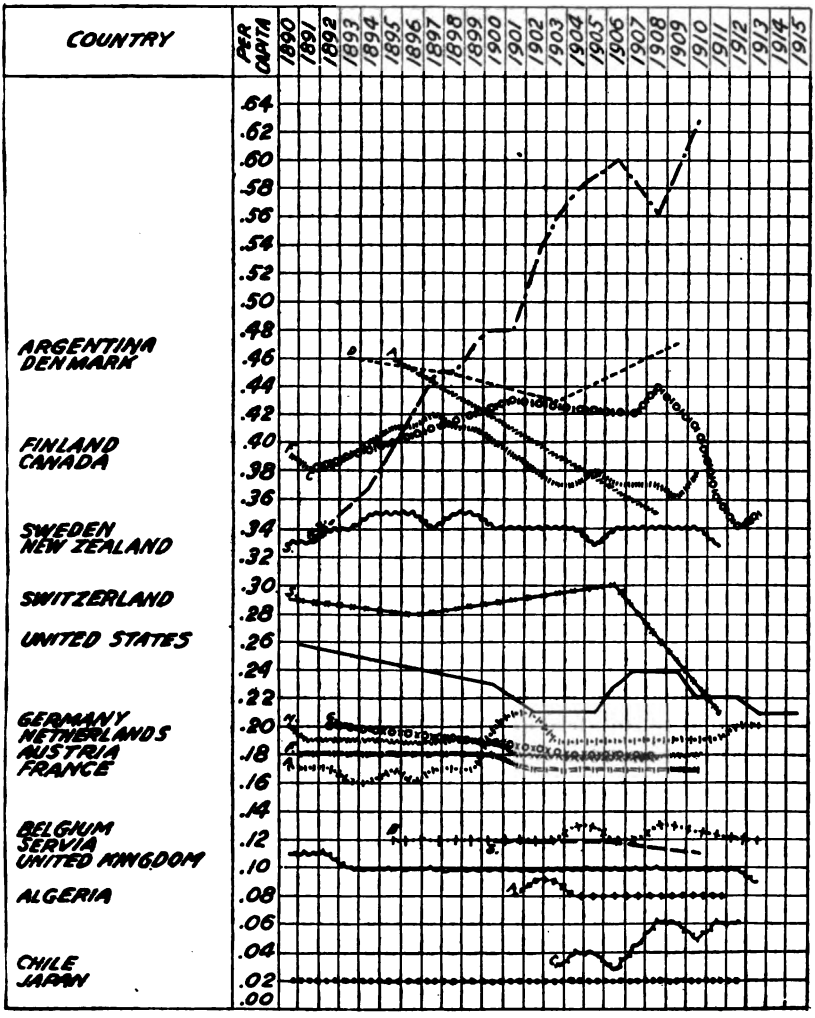

FIG. 4.—Number of dairy cows per capita of population (Table 3).

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SHEEP—NUMBER OF ANIMALS IN STOCK.

UNITED STATES.

[Tables 1 and 2.]

TOTAL SHEEP.—In collecting statistics of sheep on farms, the censuses for 1840 and 1850 expressly excluded spring lambs. In subsequent censuses they were not mentioned and were presumably largely omitted to and including the census of 1890.

Sheep on farms grew in number from 19,000,000 in 1840 to 22,500,000 in 1860, to 35,000,000 in 1880, to 36,000,000 in 1890, and to 61,500,000 in 1900, including ranges. In 1910 the census date was April 15, instead of June 1 as before, and the number of sheep on farms and ranges at the earlier date was 52,500,000. Had the census been taken for June 1 the number would probably have been about 63,000,000, or 1,500,000 above the number in 1900.

Taking the number of sheep, 52,500,000, as reported April 15, 1910, as the base, the number estimated by the Bureau of Crop Estimates of the Department of Agriculture is a declining one to 49,200,000 in 1916, a loss of about 3,300,000 in 6 years. Apparently the sheep in this country reached their largest number about 1910. The number of sheep not on farms and ranges in 1910 was about 400,000.

In following the tendency of number of sheep in geographic divisions, as stated below, the census date of June 1 from 1840 to 1900 and of April 15 for 1910 and subsequent years should be remembered; also the inclusion of spring lambs in the censuses of 1900 and 1910.

New England has almost lost its sheep since 1840, when the number was 3,800,000; the estimate for 1916 is only 351,000. Likewise, in the Middle Atlantic States the decline has been enormous, or from 7,000,000 in 1840 to 1,734,000 in 1916.

On the other hand, the East North Central States increased their sheep from 3,200,000 in 1840 to 11,200,000 in 1900. In 1910, April 15, the number of sheep was 9,500,000 and this declined to 7,600,000 in 1916.

The West North Central States possessed 2,900,000 sheep on farms in 1890 and 5,000,000 in 1900. In 1910, notwithstanding the date of April 15, the number increased to 5,100,000, which would have been about 6,000,000 on June 1. The subsequent decline from 5,100,000 in 1910 was to 4,800,000 in 1916.

By 1890 the number of sheep in the Mountain States had increased to 6,300,000, and the enormous gain during the next 10 years raised the number in 1900 to 27,000,000. In 1910, April 15, the number was 22,800,000, but this would have been about 27,300,000 on June 1, or a little above the number of 1900. There was some decline, however, after 1910, amounting to more than 600,000 sheep.

In the Pacific States sheep on farms increased to 5,500,000 in 1880, but 10 years later the number declined to 4,500,000. A contrary

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turn was taken during the next 10 years, since in 1900 the enumerators found 6,500,000 sheep on farms and ranges. In 1910, April 15, the reported sheep were 5,600,000, which perhaps would have been 6,700,000 on June 1. From 1910 to 1914 it is estimated that the sheep on the Pacific coast slightly increased, perhaps 135,000, but from 1914 to 1916 the decline is estimated at 146,000; yet in 1916 there were apparently fully as many sheep as in 1910, and that year was a high-water mark.

The South Atlantic States had 2,600,000 sheep in 1840 and 3,000,000 in 1850. After the decline due to the Civil War the number again increased and reached 2,700,000 in 1900. The number enumerated in 1910 was 2,500,000 for April 15; had the date been June 1 it is estimated that the number would have been 3,000,000, which would have reached the ante bellum high-water mark of 1850. Subsequent to 1910 the farms of the South Atlantic States have lost apparently 273,000 sheep.

Sheep on farms in the East South Central States grew from 2,000,000 in 1840 to 2,600,000 in 1850. Subsequent to the decline of the Civil War period the decrease was to 2,400,000 in 1900. For 1910, April 15, the number was 2,500,000, which would probably have been 3,000,000 on June 1. Subsequent to 1910, 350,000 sheep have been lost.

In the West South Central States sheep continued to increase to 1860 instead of only to 1850, as in the rest of the South. In 1860 the number was 1,100,000; in 1880, 2,800,000; in 1890, 3,900,000; but in 1910 there was a rapid decline to 2,200,000. The number enumerated in 1910, April 15, would have become perhaps 2,600,000 on June 1. An increasing number of sheep in the West South Central States since 1910 is indicated by the estimates of this department, and the number for 1916 is placed at 2,560,000 in comparison with the census number of 2,200,000 in 1910.

Notwithstanding the loss of sheep in some of the geographic divisions in recent years the tide did not turn apparently until about 1910. There were 61,500,000 census sheep on farms and ranges in 1900. Had the census been taken June 1, 1910, it is presumed that 63,000,000 sheep would have been found. The loss since 1910, according to the estimate, is 3,300,000 in six years.

OTHER COUNTRIES.

[Table 1.]

ALGERIA.—As far back as 1887 Algeria had 10,900,000 sheep, but the number declined, with great fluctuations, to 8,300,000 in 1912, although as late as 1908 the number was 9,600,000.

ARGENTINA.—This country possesses a third more sheep than the United States does, or about 80,000,000. In the latest census year,

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1908, the number was 67,000,000; in the next preceding census year, 1895, it was 74,000,000; and in the next preceding one, 1888, it was 67,000,000. According to the Argentine official estimates the number of sheep in that country has remained stationary from 1911 to 1914. It may be, however, that the maximum number of sheep has not been reached, because Argentina has vast areas not now utilized that can be used for sheep grazing.

AUSTRALIA.—This country perceptibly leads Argentina in number of sheep in 1913, since the estimate for 1913 is 85,000,000 head. This number, however, is far below that of 25 years ago. In 1890 there were 98,000,000 sheep in Australia, and in the following year the largest number on record was reached, or 106,400,000. A long period of decline followed, ending with 1902, in which year the Australian sheep numbered 54,000,000. Subsequently there was recovery to the extent of 93,000,000 sheep in 1911, from which year a marked decline followed to 83,000,000 sheep in 1912, followed by an increase to 85,000,000 sheep in 1913. A recent trade report states that the drought of 1914–15 reduced the sheep to 72,000,000.

Australia is subject to droughts that are destructive to a great number of sheep in one season. There were fewer sheep in 1912 than at any time since 1905, and fewer than in any year previous to 1897, certainly as far back as 1890.

AUSTRIA-HUNGARY: AUSTRIA.—A declining number of sheep is the Austrian record, or a drop from 3,200,000 in 1890 to 2,400,000 in 1910.

AUSTRIA-HUNGARY: HUNGARY.—A steady decline from 11,200,000 sheep in 1884 to 7,600,000 sheep in 1906 is recorded, but there has been steady gain subsequently, except in one year, to 8,500,000 sheep in 1911, a number considerably under that of 1884.

BELGIUM.—Few sheep have been possessed in this country. For 1895 the number was 236,000, and for 1910 only 185,000.

BRAZIL.—For only one year can an estimate for sheep be found and that is for 1914—an estimate of 10,653,000 sheep.

BRITISH EAST AFRICA.—Sheep gained from 4,300,000 in 1908 to 7,400,000 in 1911, but there was a drop to 7,000,000 in 1912, for a cause not ascertained.

BRITISH SOUTH AFRICA.—In this vast region there are extensive areas suitable for sheep raising, and hence has been possible the enormous increase of sheep from 16,000,000 in 1904 to 33,000,000 in 1911, according to the censuses of those years, followed by an increase to 36,000,000, as estimated in 1912. This notable progress has been made in spite of sheep parasites and diseases and droughts.

BULGARIA.—This is one of the few countries that exhibits a continuous increase in number of sheep. From 1892 they increased from 6,900,000 to 8,700,000 in 1910, according to censuses.

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CANADA.—High-water mark was reached in Canada in 1908, when, according to the estimate, there were 2,800,000 sheep. Perhaps, however, they were overestimated, since the census record for 1891 was 2,600,000 sheep; for 1901, 2,500,000; and for 1911, 2,200,000 sheep, all on farms and ranges. In 1915 the estimate is 2,000,000 sheep. It is plain, therefore, that in Canada, according to the censuses, sheep have decreased since 1891, and also, according to estimates, since 1911.

CHILE.—This country had, it is estimated, 4,900,000 sheep in 1913, or a greater number than in any preceding year. Eleven years previous the number was estimated at only 2,500,000, or half the number of 1913. A strong rate of increase is indicated subsequent to 1911.

COLOMBIA.—The only estimate of sheep is 746,000 for 1893.

CUBA.—The census of 1899 found only 10,000 sheep, or about one-eighth of the usual number before the preceding insurrection. No information has been published concerning number of sheep since 1899.

DENMARK.—Steadily the number of sheep has declined in Denmark from 1,247,000 in 1893 to 727,000 in 1909.

FINLAND.—This is another country with declining number of sheep. From 1890, when the sheep numbered 1,054,000, the number declined in 1907 to 904,000. In 1910 the decline was to 769,000. Lambs under 1 year old are apparently excluded throughout.

FRANCE.—Again in this country a steady and persistent decline of sheep is observed. Their number in 1890 was 21,700,000, in 1900 it was 20.200,000, in 1910 it was 17,100,000, and in 1913 it was 16,200,000.

GERMAN EAST AFRICA.—The 3,000,000 sheep and goats in 1903 increased to 3,600,000 in 1904, but from that year the decrease was to 2,800,000 in 1911, or less than in 1903.

GERMANY.—A very decided decreasing movement is evidenced by the German record. From 13,600,000 sheep in 1892 the decline was to 9,700,000 in 1900, and afterwards rapidly to 5,500,000 in 1913. In 21 years the sheep of Germany have diminished about 60 per cent.

GREECE.—From an estimated number of 4,600,000 sheep in 1902, the decline has been to about 4,000,000 in 1913.

ITALY.—Apparently sheep have very much increased in Italy from 1890 to no later a year than 1908, or from 6,900,000 to 11,200,000 sheep. There is no information subsequent to 1908.

JAPAN.—This country possesses a mere handful of sheep, which increased from 2,462 in 1899 to 4,095 in 1908, and afterwards declined to 3,308 in 1912. The Japanese system of agriculture has small place for cattle and sheep.

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MADAGASCAR.—The little information concerning sheep on this island states that their number increased from 264,000 in 1908 to 400,000 in 1910.

MEXICO.—According to the census of 1902, Mexico had in that year 3,424,000 sheep, and there is no information for any other year.

NETHERLANDS.—The record for this country is a declining one. In 1890 the sheep numbered 819,000, and steadily, but with some fluctuations, the number declined to 607,000 in 1904. The estimates for this period were made for December, but an estimate for June, 1910, makes the number of sheep 889,000.

NEW ZEALAND.—This important sheep-producing country has steadily increased its sheep, although fluctuations are apparent. From 1891 to 1913 the sheep increased from 18,000,000 to 24,000,000. This industry seems to be strongly established in New Zealand, and offers no evidence of weakening.

NORWAY.—In 1910 this country had 1,400,000 sheep, which seems to have been the number approximately as far back as 1890.

PARAGUAY.—There is no information subsequent to 1900, in which year Paraguay had only 214,000 sheep, which had increased from 63,000 sheep in 1890.

PORTUGAL.—For the only two years for which a statement is possible, 1906 and 1908, the number of sheep was about 3,100,000.

ROUMANIA.—In this country sheep increased from 5,000,000 in 1890 to 6,800,000 in 1896, from which year there was a decline to 5,300,000 in 1911.

RUSSIA, ASIATIC.—In 1905 Asiatic Russia had 11,000,000 sheep, and the number grew rapidly to 36,000,000 sheep in 1908, according to the Russian report. Such an increase seems incredible. From 1908 to 1911 the number declined to 34,500,000. The estimate of 1905 must have been much too low.

RUSSIA, EUROPEAN.—From 1890 to 1904 the estimated number of sheep in European Russia was about 49,000,000 to 50,000,000, with the exception of a short period during which a loss of about 10,000,000 sheep was reported. In 1905 Northern Caucasia was added to the area for which sheep estimates were made, and this increased the number to 53,400,000. From that year a decline has followed, with some fluctuations, until in 1913 the sheep of European Russia had fallen to 42,800,000. Apparently sheep began to decline in number about 1903.

SERVIA.—This is a country with increasing number of sheep from 1890 to 1910, during which period the sheep grew from 3,000,000 to 3,800,000.

SPAIN.—On the whole, a steady increase in number of sheep is reported from Spain. From 1891 these animals increased from 13,400,000 to 15,800,000 in 1912.

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SWEDEN.—Another country of steadily diminishing sheep. From 1,350,000 in 1890 the decline was to 946,000 in 1911, with continuous annual loss.

SWITZERLAND.—Again a country of sheep loss. In 1886 the number was 342,000, and, with diminution from year to year, the number reported for 1911 is 161,000, or less than one-half the number existing 25 years earlier.

UNITED KINGDOM.—England has been for many years the world's principal breeding ground for pure-bred sheep, and their number has been pretty well maintained for 22 years until 1912 at about 29,000,000 to 33,000,000. From 1912 to 1913 a decline from 28,967,000 to 27,629,000 sheep is reported, so that in 1913 the United Kingdom had less sheep than in any year as far back as 1890. Indeed, a decline in number of sheep is observable since 1909, when the number was 31,840,000.

URUGUAY.—The census of 1900 found 18,600,000 sheep, and the census of 1908 found 26,300,000. It is apparent that in number of sheep as well as in number of cattle Uruguay is a rapidly growing country. No information has been obtained for any year subsequent to 1908.

VENEZUELA.—The Bulletin of the Pan-American Union reports 1,600,000 sheep in Venezuela in 1909. Estimates for various preceding years are apparently wild.

SHEEP—PER CAPITA OF THE POPULATION.

[Table 3.]

UNITED STATES.

Compared with population, the United States has at no time possessed as many sheep as it did in 1840. In that year there were 1.13 sheep per capita of the population. The ratio declined to 0.94 of 1 sheep in 1850 to 0.7 of 1 sheep in 1880, and to 0.57 of 1 sheep in 1890. After the inclusion of spring lambs in 1900, the ratio rose to 0.81 of 1 sheep per capita, but in 1910, on account of the census date April 15, the per capita ratio fell decidedly to 0.57 of 1 sheep, and the ratio declined year by year to 0.48 of 1 sheep per capita in 1916. For correction on the basis of June 1, about one-fifth should be added, so that a per capita ratio of about 0.58 of 1 sheep in 1916 is comparable with 0.81 of 1 sheep in 1900, the year when sheep appear to have reached their highest ratio to population since 1850, as far as the record shows.

OTHER COUNTRIES.

ALGERIA.—Downward from a ratio of 2.8 sheep per capita in 1887, the ratio has declined, with some fluctuations, to 1.5 sheep in 1912.

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ARGENTINA.—From a ratio of 18.1 sheep per capita of the population in 1888, the ratio has declined with slight variations to 9.75 sheep in 1914. If sheep have increased rapidly in Argentina, the population has increased at a greater rate.

AUSTRALIA.—In 1890 there were 31.1 sheep per capita, and thereafter a decline followed to the comparatively low ratio of 14 sheep in 1902, after which the ratio rose to 21.1 sheep in 1909, followed by a continuous decline to 17.5 sheep in 1913. It is apparent that Australia has been unable to restore the number of sheep of the early nineties, either absolutely or per capita of the population.

AUSTRIA-HUNGARY: AUSTRIA.—The decline from 0.13 of 1 sheep in 1890 to 0.08 of 1 sheep in 1910 is the record of Austria.

AUSTRIA-HUNGARY: HUNGARY.—From 1904 to 1911 this country has had a maximum of 0.41 of 1 sheep per capita, but previous to 1904 the ratio was higher, and as far back as 1884 reached 0.68 of 1 sheep.

BELGIUM.—The meager information is that there was 0.04 of 1 sheep per capita in 1895 and 0.02 of 1 sheep in 1910.

BRAZIL.—For only one year, 1914, is a ratio obtainable, and for this year it is 0.43 of 1 sheep per capita.

BRITISH EAST AFRICA.—The ratio climbed rapidly from 0.55 of 1 sheep in 1908 to 1.19 sheep in 1911, whereupon it fell to 1.05 sheep in 1912.

BRITISH SOUTH AFRICA.—The immense number of sheep in this region provided the ratio of 3.14 sheep per capita of the population in 1904 and an increase to 5.78 sheep in 1912.

BULGARIA.—This country had fewer sheep per capita in 1910 than in 1892, or 2 sheep in the later year as compared with 2.07 sheep in the earlier.

CANADA.—A record of continuous decline from 1891 to 1914 is presented for Canada. For the first-named year the ratio was 0.53 of 1 sheep and for the last year 0.25 of 1 sheep.

CHILE.—There are uncertainties in the record of this country, but for 1913 it appears that there were 1.38 sheep per capita, or a greater ratio than is reported for any year as far back as 1901, except 1.39 sheep per capita for 1906.

COLOMBIA.—Not since 1893 has the number of sheep been estimated for this country, as far as discoverable, and in that year the per capita ratio was 0.17 of 1 sheep.

CUBA.—Previous to the insurrection that was followed by the occupation by the United States, Cuba had about 0.05 of 1 sheep per capita. There is no information subsequent to 1899, in which year the sheep had been reduced by war to 0.01 of 1 sheep per capita.

DENMARK.—A steady decline from 0.56 of 1 sheep per capita in 1893 to 0.27 of 1 sheep in 1909 is the story for Denmark.

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FINLAND.—Another country of declining ratio of sheep per capita of the population. In 1890 the ratio was 0.44 of 1 sheep, and in 1907, 0.3 of 1 sheep.

FRANCE.—Steadily has France lost sheep in comparison with population since 1890. In that year the ratio was 0.56 of 1 sheep, and in 1913 it was 0.41 of 1 sheep.

GERMAN EAST AFRICA.—A declining ratio from 0.52 of 1 sheep in 1904 to 0.38 of 1 sheep in 1911 is reported for this colony.

GERMANY.—More rapidly than France, Germany has lost sheep in comparison with population. The ratio in 1892 was 0.27 of 1 sheep, and in 1913 only 0.08 of 1 sheep.

GREECE.—From 1902 to 1913 the per capita ratio of sheep declined from 1.8 sheep to 1.46 sheep.

ITALY.—The record for Italy indicates an increase of sheep per capita from 1890 to 1908, during which period the ratio grew from 0.23 of 1 sheep to 0.33 of 1 sheep.

JAPAN.—The sheep were so few that they make an infinitesimal ratio to the population.

MADAGASCAR.—In 1908 there was 0.09 of 1 sheep per capita, and in 1910, 0.13 of 1 sheep, and there is no information for earlier and later years.

MEXICO.—A per capita ratio of 0.24 of 1 sheep is based on the census of 1902, and there is no information for any other year.

NETHERLANDS.—A declining ratio of sheep to population appears from 1890 to 1904, or a decline from 0.18 of 1 sheep per capita to 0.11 of 1 sheep.

NEW ZEALAND.—Notwithstanding the strength of the sheep industry in this colony, it has not increased as fast as population since 1891. In that year there were 28.2 sheep per capita, and the ratio fell to 21.3 in 1904, after which year it rose to 24.2 sheep in 1910, and afterwards fell to 22.7 sheep in 1913.

NORWAY.—In 1890 there was 0.71 of 1 sheep per capita of the population, and there was a great decline to 0.45 of 1 sheep in 1900. The ratio of 0.6 of 1 sheep in 1907 was followed by a decline to 0.58 of 1 sheep in 1910.

PARAGUAY.—There is no information subsequent to 1900, but to that year from 1890 the ratio increased from 0.16 of 1 sheep per capita to 0.33 of 1 sheep.

PORTUGAL.—For only two years for which information is obtainable, 1906 and 1908, there was 0.59 of 1 sheep per capita.

ROUMANIA.—From 0.94 of 1 sheep per capita in 1890, the ratio rose to 1.2 sheep per capita in 1896, and afterwards steadily fell to 0.74 of 1 sheep per capita in 1911.

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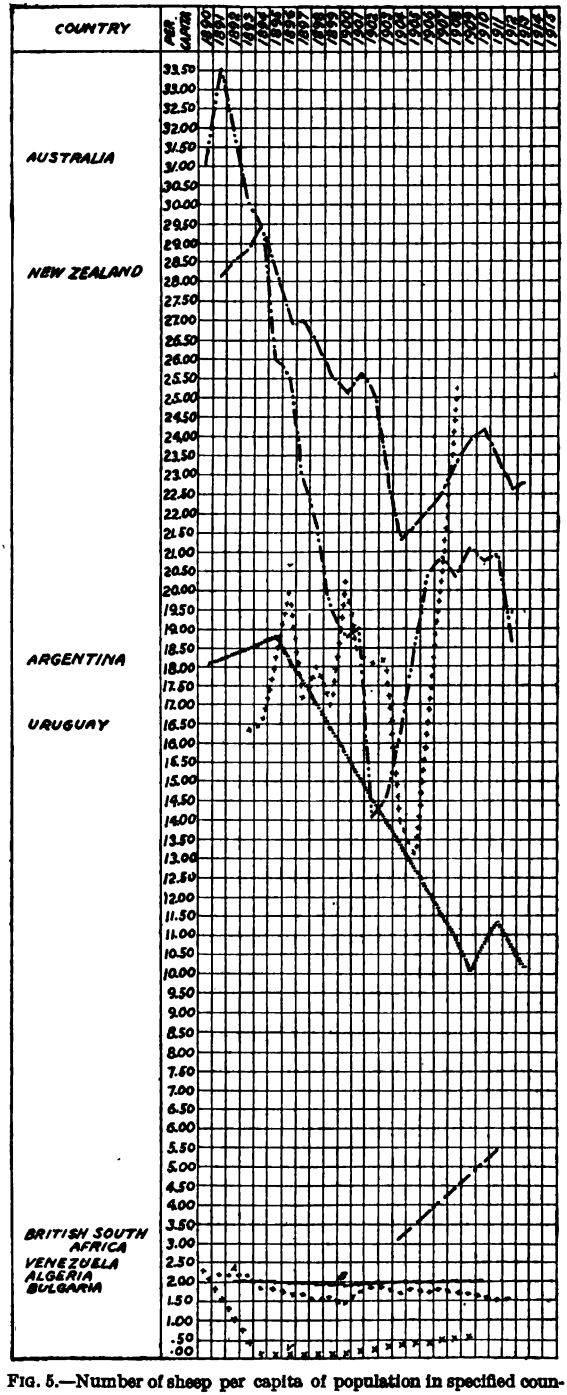

FIG. 5.—Number of sheep per capita of population in specified countries (Table 3).

RUSSIA, ASIATIC.—In 1908 there were 1.5 sheep per capita, and this was followed by a yearly decline to 1.27 sheep in 1911.

RUSSIA, EUROPEAN.—The European part of Russia has steadily lost sheep in relation to population since 1890. In that year the ratio was 0.56 of 1 sheep per capita, and in 1913 the ratio was only 0.29 of 1 sheep per capita, although goats were included, and also Northern Caucasia.

SERVIA.—Sheep declined per capita from 1.37 sheep in 1890 to 1.18 sheep in 1905, but in 1910 the ratio rose to 1.31 sheep per capita, or less than in 1890.

SPAIN.—This country has increased its ratio of sheep to population. In 1891 there was 0.75 of 1 sheep per capita, and in 1911 and 1912 there was 0.8 of 1 sheep.

SWEDEN.—A declining ratio throughout from 0.28 of 1 sheep per capita in 1890 to 0.17 of 1 sheep in 1911.

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SWITZERLAND.—Another country of continuous decline. From 0.12 of 1 sheep per capita in 1886 the ratio declined to 0.04 of 1 sheep per capita in 1911.

UNITED KINGDOM.—Still another country with a record of decline since 1890, with an occasional fluctuation. In that year there was 0.84 of 1 sheep per capita, and in 1913 the ratio had fallen to 0.6 of 1 sheep.

URUGUAY.—From the census year 1900 the ratio of 20.3 sheep per capita of the population increased to 25.2 sheep per capita in the census year 1908. There is no subsequent information.

VENEZUELA.—On the authority of the Pan-American Union, the ratio of sheep to population in 1909 was 0.6 of 1 sheep per capita.

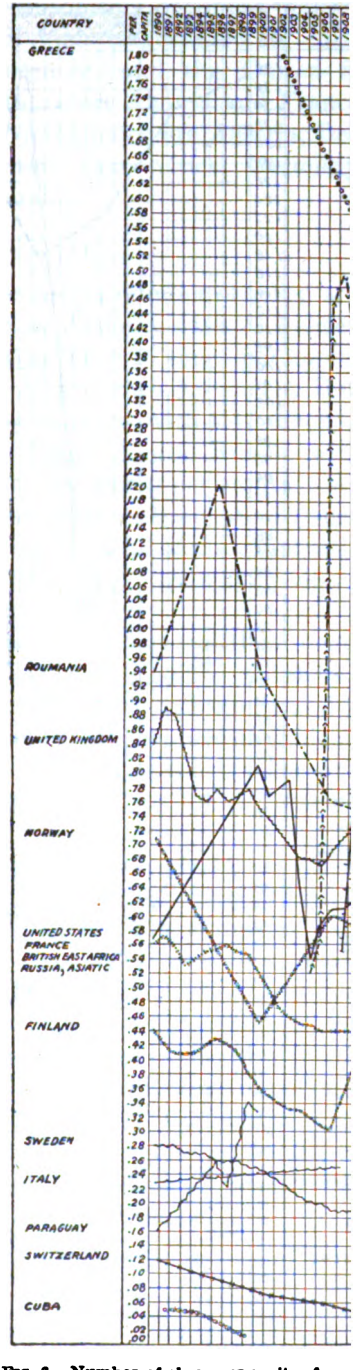

FIG. 6.—Number of sheep per capita of pop in specified countries (Table 3)—Contin

SHEEP—COMPARISON OF COUNTRIES.

NUMBER OF SHEEP.

Australia continued to lead the countries of the world in number of sheep with 85,000,000 in 1913, but close after Australia follows Argentina with 80,000,000. Drought is said to have reduced Australia's sheep to 72,000,000 in 1915. Asiatic and European Russia combined possess 77,000,000 sheep, including some goats, and the United States has about 50,000,000 sheep on farms and ranges (April 15). Next below the United States, among the 40 countries for which the

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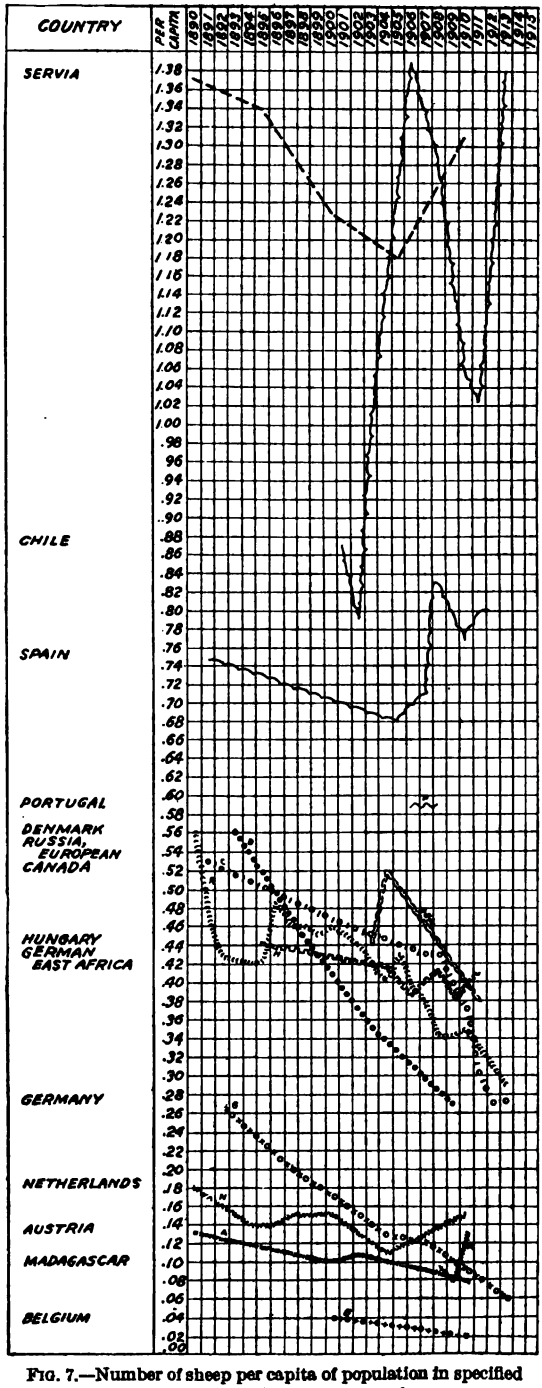

FIG. 7.—Number of sheep per capita of population in specified countries (Table 3)—Continued.

record has been made, follow in order British South Africa with 36,000,000 sheep, the United Kingdom with 28,000,000, Uruguay with 26,000,000, and New Zealand with 25,000,000. France has over 16,000,000 sheep, Spain a little less than 16,000,000, Italy over 11,000,000, and Brazil somewhat less than 11,000,000 sheep.

In recent years, or since about 1907 or 1908, sheep have absolutely increased in Argentina, Uruguay, and New Zealand—all countries of high importance—and have increased also in British East Africa, British South Africa, Bulgaria, possibly Chile, Madagascar, and possibly Servia.

In a few other countries sheep are maintaining their numbers absolutely, and by far the most important of these is Asiatic Russia, where perhaps sheep are slightly increasing. In this list are Spain and Hungary, and, of less importance, Norway, possibly Greece, and possibly Roumania.

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The countries in which sheep are absolutely declining make a long list and include such countries of high importance as Australia, European Russia, the United Kingdom, and the United States. Among the countries of less importance are Algeria and France, and among the countries of still lower consequence are Austria, Belgium, Canada, Denmark, Finland, German East Africa, Germany, the Netherlands, Sweden, and Switzerland.

PER CAPITA SHEEP.

By far the leading countries in per capita number of sheep are Uruguay, with 25.2 sheep per capita; New Zealand, with 22.7 sheep, and Australia, with 17.5 sheep. Argentina has 9.75 sheep per capita, and then follow in order British South Africa, with 5.4 sheep; Bulgaria, with 2 sheep; Algeria, with 1.5 sheep; Greece, with 1.47 sheep; Chile, with 1.38 sheep; Servia, with 1.31 sheep; Asiatic Russia, with 1.27 sheep, and British East Africa, with 1.05 sheep per capita. According to the estimate for 1916, the United States has 0.48 of 1 sheep per capita, and this ratio is exceeded not only by all of the countries above mentioned, but also by Norway, Portugal, Roumania, Spain, the United Kingdom, and Venezuela.

If sheep make an unfavorable showing in most of the 40 countries under consideration with regard to their absolute numbers, their showing in relation to population is still worse. Uruguay and British South Africa are the only countries of importance in which sheep are increasing in comparison with population in very recent years, and the only other countries in this class are British East Africa, Madagascar, and possibly Servia.

A stationary ratio of sheep to population is found in another small list of countries, and this list contains only one country of high importance—New Zealand. The other countries are Hungary, Bulgaria, Norway, Spain, and possibly Chile.

There remain a long list of countries in which sheep are declining relative to population, and the most important of these countries are Argentina, Australia, Asiatic Russia, European Russia, the United Kingdom, and the United States. Of considerable importance are Algeria, France, and, if it may be included, Roumania. The less important countries are Austria, Belgium, Canada, Denmark, Finland, German East Africa, Germany, Greece, the Netherlands, Sweden, and Switzerland.

SWINE—NUMBER OF ANIMALS IN STOCK.

Hogs do not fit into the agricultural economy of the various nations in the same ways and degrees that cattle and sheep do. This is partly on account of the corn crop, three-quarters of the world's production being derived from the United States, partly on account of other swine foods, partly on account of range conditions, the economical produc-

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tion of other animal foods for the human population, and on account of the climate, animal diseases, and other factors which need not here be mentioned.

The United States is by far the principal swine country of the world. The 70,500,000 swine on and off the farms in this country, estimated for June 1, 1910, are about as many as the swine in Argentina, Austria-Hungary, Canada, France, Germany, European Russia, and the United Kingdom, and these are all of the countries that are of considerable swine production except China, the number of whose swine is enormous but unknown. A characteristic of swine that should always be borne in mind in a consideration of their number is their remarkable rate of reproduction.

UNITED STATES.

[Tables 1 and 2.]

TOTAL SWINE.—The decennial census may find the number of swine unusually high on account of previous high price or, on account of the mortality from disease, unusually low. Subject to this possibility, the census found 26,000,000 swine in the United States in 1840, 33,500,000 swine in 1860, 47,700,000 in 1880, 57,400,000 in 1890, and 62,900,000 in 1900. In 1910 the census changed from June 1 to April 15, and the swine enumerators found only 58,200,000. If, however, the number of swine found at that date is increased to the number estimated to exist on the following 1st of June, the swine on farms in 1910, June 1, probably numbered 69,200,000. In 1910 the swine not on farms numbered 1,300,000. Therefore the total number of swine in this country on and off farms June 1, 1910, was undoubtedly about 70,500,000.

The 58,200,000 swine found by enumerators April 15, 1910, had increased, according to the estimates of the United States Department of Agriculture, to 65,400,000 in 1912, but the unusual prevalence of hog cholera in 1913 reduced the number to 58,900,000 in 1914. The next year, 1915, the number was estimated at 64,600,000, and in 1916 at 68,000,000. From the earliest record, therefore, there has been a persistent course of increase of swine in the United States.

Since 1900 swine have considerably increased in New England, and the number in 1916 is estimated to be 456,000; but this number is below the census number for 1840, which was 709,000, a number that has not since been equaled.

The same general fact pertains to the Middle Atlantic States, in which the number of swine in 1916 is 2,170,000, the highest number since 1890. No year, however, has equaled 1840, when the swine numbered 3,665,000.

The steady increase in number of swine in the East North Central States began with 5,600,000 swine in 1840, and continued to 16,000,000 swine in 1916. Apparently this latter number was exceeded in 1900,

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when the census reported a little over 16,000,000 swine, due perhaps to the later census date in 1900.

In the West North Central States the story is similar to that of the East North Central States. Beginning with 1,400,000 swine in 1840, the West North Central States had almost 24,400,000 swine in 1916, exceeded only by a little over 24,400,000 swine in 1900, perhaps on account of the later census date.

The Mountain States in 1916 had 1,300,000 swine, which had rapidly increased from 8,000 in 1840, but yet is comparatively a small number. Similarly, in the Pacific States the number in 1916, 1,700,000, is comparatively small, and yet it increased from 33,000 in 1840.

The South Atlantic States have now exceeded the number of swine possessed by them before the Civil War. In 1840 these States had 6,600,000 swine, in 1850, 7,500,000 swine, and in 1860, 7,200,000 swine. The recovery from the losses of the war and a radical change in the agriculturel system have been slow until within the last very few years, and the recent rapid gain in swine to 7,700,000 in 1916 promises to continue as a result of new farm management.

The East South Central States have not done so well in swine progress as the South Atlantic States have. In 1840 the East South Central States had 7,700,000 swine, in 1850, 9,500,000, and in 1860 8,000,000. The census of 1880 found 6,800,000 swine in these States, but the number declined to 5,400,000 in 1910, when the census date was April 15. If an estimate be made for June 1 of that year the swine may be supposed to have been about 6,500,000. Since 1910, swine in these States have increased from the census number, 5,400,000, to 6,600,000 in 1916, a number still far below the high-water mark of 1850.

The West South Central States, being largely composed of more recently settled country, have had a steadily increasing number of swine since 1840, or a gain from 700,000 swine in 1840 to 7,800,000 in 1916.

As hogs are now distributed throughout the geographic divisions, the North Central States, extending from Ohio to the western line of Kansas, contain 59 per cent of the national total; the Southern States, from the Atlantic Ocean to the western line of Texas, have 32 per cent of the total; the remaining 9 per cent are in the East and in the Mountain and Pacific States.

OTHER COUNTRIES.

[Table 1.]

ALGERIA.—The few swine in this country increased steadily from 87,000 in 1887 to 114,000 in 1912.

ARGENTINA.—This country has so far preferred to sell corn rather than to feed it to hogs, and the rate of increase from 1908 to 1914 has

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been only 350,000 hogs a year, and since 1911 only 200,000 a year. The increase in the number of hogs and the maintenance of the stock of hogs seem to be due largely to alfalfa. From 1888 to 1914 swine increased from 400,000 to 3,500,000.

AUSTRALIA.—Swine production is and always has been a small industry, comparatively, in Australia. There are fewer hogs in that country now than there were in the early nineties. In 1913 the swine numbered 800,000, and at no time has the number reached 1,000,000, except in 1904, 1905, 1910, and 1911, when this number was barely exceeded.

AUSTRIA-HUNGARY: AUSTRIA.—This country gives the hog a prominent place in farm economy and has increased the number of swine from 3,500,000 in 1890 to 6,400,000 in 1910.

AUSTRIA-HUNGARY: HUNGARY.—A similar fact is found in Hungary, and also the fact that corn is an important crop. From 1884 to 1911 Hungarian swine increased from 5,600,000 to 7,600,000, with considerable fluctuations in the meantime.

BELGIUM.—A steady increase of swine in this country from 1,200,000 in 1895 reached the total of 1,400,000 in 1913.

BRAZIL.—The only estimate of swine in Brazil was made in 1914 by the Minister of Agriculture, but the estimate is over 18,000,000 swine.

BRITISH EAST AFRICA.—The few swine in this country increased from 13,000 in 1908 to 15,000 in 1912.

BRITISH SOUTH AFRICA.—This is a country in which swine have not multiplied as might have been expected. In 1904 they numbered 700,000, and in 1911 only 1,100,000, an increase of less than 60,000 swine a year.

BULGARIA.—From 462,000 in 1892 the number of swine increased to 527,000 in 1910.

CANADA.—According to the Census and Statistics Office of Canada, the number of swine has decreased from the 3,600,000 of the census of 1911 to 3,100,000 in 1915. The census of 1901 recorded 2,293,000 swine, and the census of 1891 found 1,734,000 swine. The decrease in swine in very recent years has occurred in spite of the rapid increase in number of farms.

CHILE.—Apparently the 135,000 swine of 1901 increased to 339,000 swine in 1906, and afterwards decreased, with fluctuations, to 170,000 swine in 1913.

COLOMBIA.—The only estimate of swine for this country that can be found is 2,300,000 for 1893.

CUBA.—The census of 1899 recorded 359,000 swine, which were all that had been spared in the preceding warfare. Normally, in previous years, the swine had numbered about 570,000. No information is provided for any year subsequent to 1899.

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DENMARK.—This very interesting country with respect to swine and bacon had 829,000 swine in 1893. Ten years later the number had nearly doubled, and was 1,457,000, but in 1909—6 years afterwards—the number was only 1,468,000, or almost exactly the same as in 1903. Perhaps an economic limit to number of swine has been reached. The swine industry depends largely on the dairy industry in Denmark, and the dairy industry depends considerably on imported feeds.

FINLAND.—A slow but steady increase of swine from 194,000 in 1890, to 221,000 in 1907, is the record for this country.

FRANCE.—The importance of hogs has long been recognized in France, but their number has been increased only by 1,000,000 in 23 years, or from 6,000,000 in 1890 to 7,000,000 in 1913, with fluctuations in the meantime.

GERMAN EAST AFRICA.—Hardly 1,500 hogs were in this colony from 1903 to 1905.

GERMANY.—This country well recognizes the strong economic position of the hog. Next after the United States, Germany is the most prominent hog-raising country, except China. Not having a corn crop to feed to these animals, Germany feeds potatoes, root crops, and a variety of farm products. From 12,200,000 swine in 1892, the number increased to 25,600,000 in 1913, or more than doubled in 21 years.

GREECE.—It is supposed that the swine numbered about 60,000 in 1913, and that the number was about 80,000 in 1912 and 1902.

ITALY.—Although hogs are comparatively few in number in Italy, yet they are gradually increasing. In 1890 their number was 1,800,000, and in 1908, 2,500,000, or a gain of only 700,000 in 18 years.

JAPAN.—Unlike China, Japan is not a hog-raising country, since the number of swine in 1899 was only 206,000, and in 1912 only 309,000.

MADAGASCAR.—From 1908 to 1910 the number of swine increased from 479,000 to 600,000; no information for any other years.

MEXICO.—The only information is derived from the census of 1902, which found only 616,000 swine.

NETHERLANDS.—In June, 1910, the swine of this country numbered 1,260,000, all ages being included. In previous years the number is stated for December and includes animals over 2 months old. Swine have steadily increased from 579,000 in 1890 to 862,000 in 1904.

NEW ZEALAND.—Swine have been inconspicuous in this country. The number reported year by year from 1896 to 1909 has been about 200,000 to 250,000, but in 1911 a sudden increase of about 40 per cent occurred over 1909, so that the latest estimate stands at 349,000 swine.

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NORWAY.—From 121,000 swine in 1890 the number increased to 334,000 in 1910.

PARAGUAY.—From 1890 to 1900 the swine increased from 11,000 to 24,000; there is no information for a later year.

PORTUGAL.—This country had 1,100,000 swine in 1906, and 1,300,000 in 1908.

ROUMANIA.—From 1890 to 1900 swine increased from 926,000 to 1,709,000, but afterwards the number decreased to 1,021,000 in 1911.

RUSSIA, ASIATIC.—Swine have hardly obtained a footing in farm economy in the vast temperate region of Siberia. Only 765,000 swine existed in 1905, and 1,534,000 in 1911.

RUSSIA, EUROPEAN.—This part of Russia has not as many hogs as France, and the number seems to have decreased since 1896, for which year 14,647,000 swine are reported. The number in 1913 was 12,487,000.

SERVIA.—Substantially a stationary number of swine existed from 1890 to 1910, ranging between 866,000 and 960,000.

SPAIN.—Steadily, but slowly, increasing in number, the swine of this country gained from 1,928,000 in 1891, to 2,571,000 in 1912.

SWEDEN.—Another country with slow but steady increase in number of swine. The 645,000 swine of 1890 grew to 951,000 in 1911.

SWITZERLAND.—This country had 395,000 swine in 1886 and 567,000 in 1896, and their number has remained stationary to 1911.

UNITED KINGDOM.—Although swine have rapidly decreased from 4,250,000 in 1911 to 3,306,000 in 1913, the number was about stationary on the whole from 1890 to 1911, although considerable fluctuations appear. In the United Kingdom swine have always been regarded as providing important articles of food.

URUGUAY.—The swine industry may be regarded as well established in this country, although yet on a small scale. The census of 1900 reported 94,000 swine, and the census of 1908, 180,000. It is supposed that the number has increased since 1908, but no estimate has been discovered.

VENEZUELA.—According to estimates, this country has 1,600,000 swine.

SWINE—PER CAPITA OF THE POPULATION.

[Table 3.]

Since population is everywhere increasing, the ratio of swine to population is not so favorable to swine as the absolute number of these animals; yet swine fare much better than cattle do in this comparison, and very greatly better than sheep do.

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UNITED STATES.

A steady, persistent, and strong decline in per capita number of swine in the United States is observed from the first census year in which swine were enumerated to the latest one. In 1840 there were 1.54 animals per capita of the population; in 1850, 1.31 animals; in 1860, 1.07 animals; in 1880, 0.95 of 1 animal; in 1890, 0.91 of 1 animal; and in 1900, 0.83 of 1 animal. In 1910 with a census date one and one-half months earlier than before, there was 0.63 of 1 animal per capita, but this should be increased by nearly one-fifth to be on the former basis, and with this increase the ratio for 1910, June 1, becomes about 0.75 of 1 animal to compare with 0.83 of 1 animal in 1900. The census ratio for 1910, April 15, being 0.63 of 1 animal, the ratio for 1914 had declined to 0.6 of 1 animal on account of a widespread and severe epidemic of hog cholera; but in 1915 the ratio increased to 0.65 of 1 animal, and in 1916 to 0.67 of 1 animal, according to the estimate of the Bureau of Crop Estimates, thus indicating an arrest of the long continued decline in the ratio of swine to population, and a present tendency to increase, as in the case of cattle.

OTHER COUNTRIES.

ALGERIA.—Approximately a constant ratio of 0.02 of 1 animal per capita is the ratio of swine to population from 1887 to 1912.

ARGENTINA.—A constantly increasing ratio of swine to population is in evidence in this country, with an increase from 0.11 of 1 animal per capita in 1888 to 0.43 of 1 animal in 1914.

AUSTRALIA.—While undergoing considerable fluctuations in per capita ratio, there has been on the whole a decline from 0.28 of 1 animal per capita in 1890 to 0.16 of 1 animal in 1913.

AUSTRIA-HUNGARY: AUSTRIA.—From 1890 to 1910 swine increased per capita of population from 0.15 of 1 animal to 0.23.

AUSTRIA-HUNGARY: HUNGARY.—There has been a nearly continuous increase in per capita number of swine from 0.25 of 1 animal in 1906 to 0.36 of 1 animal in 1911. Previous to 1906 there was a decline from 0.34 of 1 animal in 1884.

BELGIUM.—Notwithstanding some fluctuations, swine have remained nearly at 0.18 of 1 animal per capita from 1895 to 1913.

BRAZIL.—The extremely high ratio of 0.74 of 1 animal per capita is indicated by an official report for 1914, but it seems incredible, for the reason that it would place Brazil alongside the United States or above.

BRITISH EAST AFRICA.—A very low per capita ratio of swine from 1908 to 1912, expressed by 0.002 of 1 animal.

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BRITISH SOUTH AFRICA.—From 1904 to 1911 the per capita ratio of swine increased from 0.13 of 1 animal to 0.18.

BULGARIA.—From 1892 the ratio of 0.14 of 1 animal per capita declined to 0.12 in 1905 and 1910.

CANADA.—The ratio increased from 0.36 of 1 animal in the census year 1891 to 0.43 of 1 animal in the census year 1901, and to 0.5 of 1 animal in the census year 1911; but since that year, according to estimates, the ratio has declined to 0.42 of 1 animal in 1914.

CHILE.—In recent years there was 0.05 of 1 animal per capita.

COLOMBIA.—The ratio for 1893, the only year for which it can be given, was 0.53 of 1 animal.

CUBA.—During a few years before the Cuban rebellion that was followed by war with the United States there was from 0.31 to 0.33 of 1 animal per capita.

DENMARK.—A growing ratio was maintained by Denmark between swine and population from 1893 to 1903, during which time there was an increase from 0.37 of 1 animal to 0.58, but the ratio fell in 1909 to 0.54 of 1 animal.

FINLAND.—Substantially a uniform ratio of 0.07 to 0.08 of 1 animal per capita has been maintained in Finland from 1890 to 1907.

FRANCE.—The ratio of 0.16 of 1 animal per capita in 1890 grew to 0.19 of 1 animal in 1903–1905, but this ratio declined to 0.17 of 1 animal in 1910–1912, and 0.18 in 1913.

GERMAN EAST AFRICA.—Ratio too small to be mentioned.

GERMANY.—This country presents an increasing ratio in the comparison of swine with population from 0.24 of 1 animal in 1892 to 0.38 of 1 animal in 1913.

GREECE.—A ratio of 0.03 of 1 animal in 1902 and 1912 declined to 0.02 in 1913.

ITALY.—A slight increase in ratio from 1890 to 1908, or from 0.06 of 1 animal to 0.07.

JAPAN.—A minute increase of ratio from 0.005 of 1 animal in 1899 to 0.006 in 1912.

MADAGASCAR.—From 0.16 of 1 animal per capita in 1908 the ratio became 0.2 of 1 animal in 1910.

MEXICO.—For the census year 1902 the ratio was 0.04 of 1 animal per capita.

NETHERLANDS.—From 1890 to 1904 the ratio increased from 0.13 of 1 animal to 0.16.

NEW ZEALAND.—In comparing swine with population, the per capita ratio declined from 0.35 of 1 animal in 1891 to 0.26 of 1 animal in 1909, but the estimate for 1911 so largely increased the number of

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swine that the per capita ratio was restored to 0.35 of 1 animal, the same ratio reported for 1891.

NORWAY.—From 1890 to 1910 the ratio grew from 0.06 of 1 animal per capita to 0.14.

PARAGUAY.—In the census year 1899 there was 0.04 of 1 animal per capita of the population.

PORTUGAL.—The estimates indicate 0.21 of 1 animal per capita in 1906 and 0.25 in 1908.

ROUMANIA.—Swine increased from 0.17 of 1 animal per capita of the population in 1890 to 0.28 in 1900, but fell to 0.14 of 1 animal in 1911.

RUSSIA, ASIATIC.—Substantially the same ratio of swine to population from 1907 to 1911, or about 0.06 of 1 animal.

RUSSIA, EUROPEAN.—The annual ratios from 1890 to 1913 on the whole declined from 0.12 of 1 animal per capita to 0.09.

SERVIA.—A continuous decline from 0.42 of 1 animal in 1890 to 0.3 in 1910.

SPAIN.—On the other hand, this country presents an increase of ratio from 0.11 of 1 animal in 1891 to 0.13 in 1912.

SWEDEN.—Another country with a progressive ratio, beginning with 0.13 of 1 animal per capita in 1890 and increasing to 0.17 of 1 animal in 1911.

SWITZERLAND.—Since 1896 the ratio of swine to population has decreased from 0.18 of 1 animal per capita to 0.15 in 1906 and 1911.

UNITED KINGDOM.—The general trend has been downward from 1890 to 1913, with 0.12 of 1 animal per capita in the former year and 0.07 in the latter. Many intermediate fluctuations appear.

URUGUAY.—From the census year 1900 to the census year 1908 the swine increased from 0.1 of 1 animal per capita to 0.17.

VENEZUELA.—According to the Bulletin of the Pan-American Union, the ratio of swine to population in 1909 was 0.6 of 1 animal per capita.

SWINE—COMPARISON OF COUNTRIES.

NUMBER OF SWINE.

Corrected for the census date of June 1, it is estimated that the census number of swine on farms in the United States was 69,241,000, and if the swine not on farms are added the total at that date was about 70,500,000. In the latest year for which information is presented, Germany had 25,600,000 swine; Austria-Hungary had 14,000,000, as also had the entire Russian Empire. The number in France was 7,000,000, in Argentina 3,500,000, in the United Kingdom 3,300,000, in Canada 3,100,000, in Spain 2,600,000, and in Italy

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2,500,000. The swine of the world, excluding China, are mostly found in the United States, Germany, Austria-Hungary, France, and European Russia.

Most of the countries of the 40 for which the number of swine has been ascertained exhibit an increase in absolute numbers in very recent years. The most important of these countries are the United States, Austria-Hungary, and Germany; and the many subordinate countries are Algeria, Argentina, Belgium, British East Africa, British South Africa, Bulgaria, Japan, Madagascar, the Netherlands, New Zealand, Norway, possibly Asiatic Russia, Spain, Sweden, possibly Switzerland, and Uruguay.

The countries in which swine are practically stationary in number in recent years are mostly of some importance, and these countries are Australia, Finland, France, possibly Greece, European Russia, possibly Servia, and the United Kingdom.

Only 3 countries of the 40 remain to present a record of declining number of swine, and these are Canada, Chile, and perhaps Roumania.

PER CAPITA SWINE.

The official estimate of the number of swine in Brazil gives to that country a higher per capita number than any other country has, or 0.74 of 1 animal, but this is incredible. The ratio for the United States in the census year 1910, corrected to the date of June 1, is 0.75 of 1 animal, and no country, unless Brazil, comes anywhere near this ratio. Next below is apparently Venezuela, with 0.6 of 1 animal, but this may be doubted. Denmark has a ratio of 0.54 of 1 animal, without any doubt, and next below Denmark are Argentina, with 0.43 of 1 animal, Canada, with 0.42, Germany, with 0.38, Hungary, with 0.36, New Zealand, with 0.35, and Servia, with 0.3; all other countries are below the last figure.

Within very recent years the tendency of swine to increase in comparison with population is found in a goodly list of countries, prominent among which are the United States for the last three years, Germany, Austria-Hungary, Spain, and Argentina. Other countries in this list are British South Africa, Madagascar, the Netherlands, New Zealand, Sweden, and Uruguay.

The list is long also for those countries in which swine are maintaining about the same ratio to population in recent years. Prominent countries are Russia, both European and Asiatic, and France. Minor countries are Algeria, Belgium, British East Africa, Bulgaria, Finland, Japan, Norway, and perhaps Switzerland.

Fewer countries exhibit a decline in ratio of swine to population, but some of these countries are of consequence. These are Australia, Canada, Chile, possibly Greece, Roumania, Servia, and the United Kingdom.

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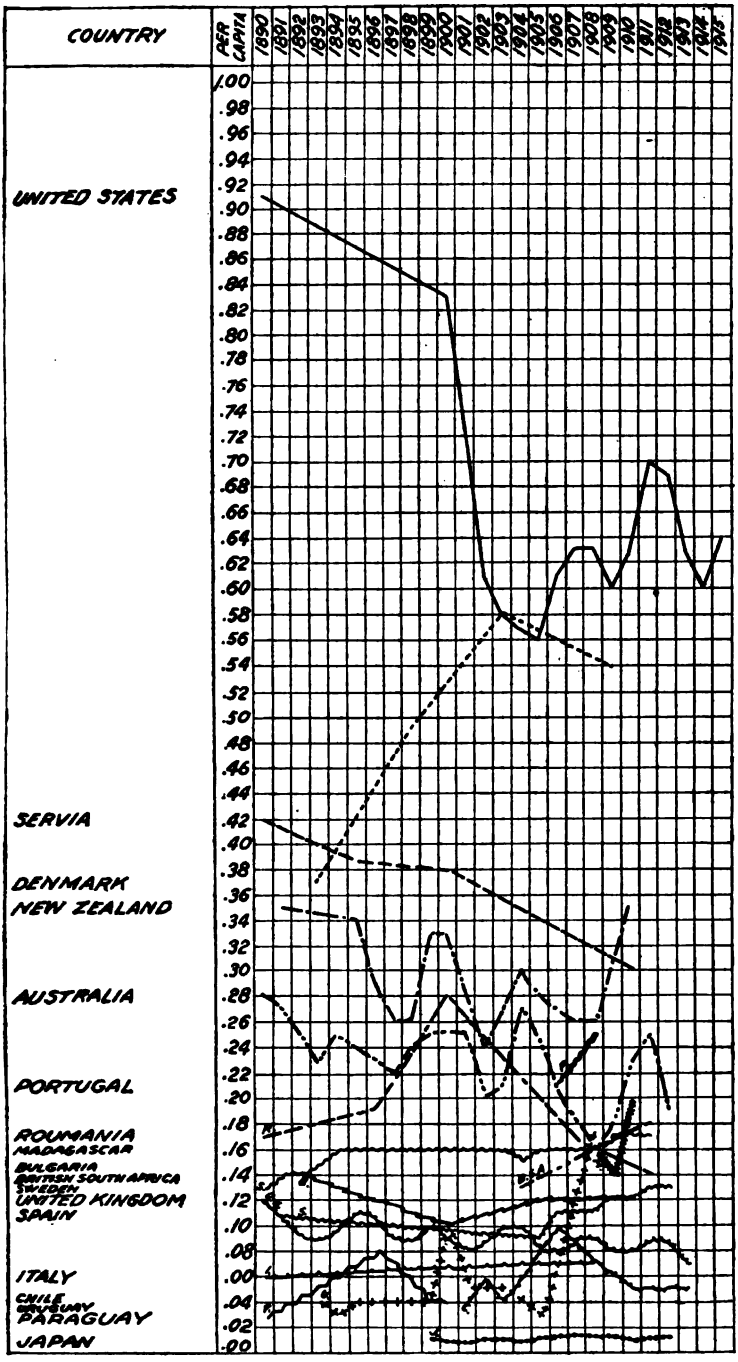

FIG. 8.—Number of swine per capita of population in specified countries (Table 3.)

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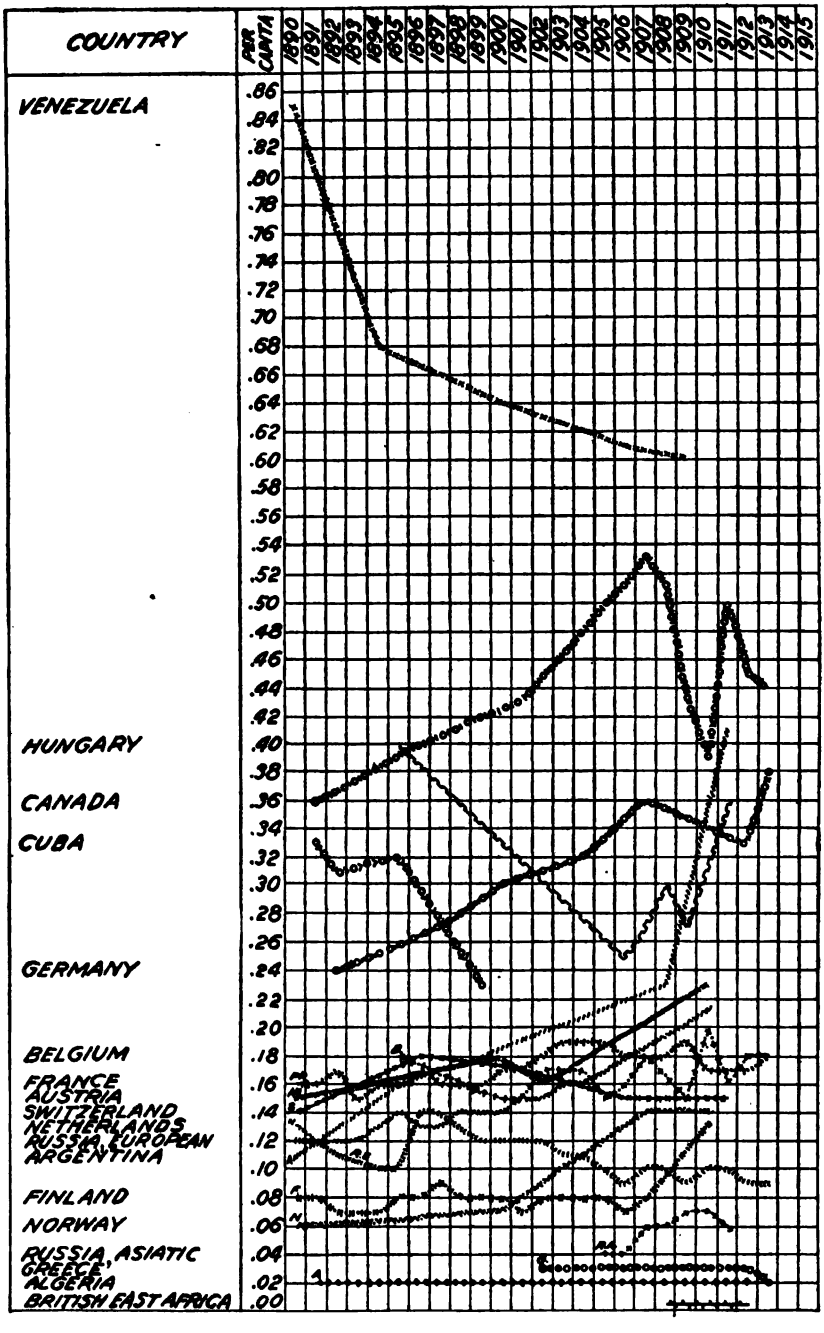

FIG. 9.—Number of swine per capita of population in specified countries (Table 3)—Continued.

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CATTLE, SHEEP, AND SWINE COMPARED.

NUMBER OF ANIMALS.

The general fact appears to be that throughout the world cattle are hardly increasing absolutely, sheep are declining in number, and swine are increasing. These conditions extend, with here and there an exception, throughout the world. It would seem as though sheep, notwithstanding meat and wool, are not economic animals, that swine are of the contrary character, and that cattle are in the balance.

There has long been an economic conflict between the range, with its cheap land and extensive conditions, and the farm, with its relatively high-priced land and intensive conditions. The United States passed rapidly into range production after it was once begun, and to a large extent rapidly out of it, although there is still a vast area available for sheep and cattle grazing.

Argentina has rapidly developed a beef and mutton production and is still a promising range country, yet farms have encroached enormously on the range area in the Province of Buenos Aires. Both beef and mutton production is well established in Uruguay, with an assured future development.

Conditions in Australia appear not to be favorable to further increase in beef production, and they inflict great destruction upon mutton production at not infrequent times of severe drought. A trade paper's correspondent reports that a long drought diminished the number of sheep in Australia from the 85,000,000 of 1913 to 72,000,000 in the spring of 1915.

Efforts are now under way to establish a fresh-meat producing industry on Brazilian ranges, as much under control as in Argentina or Uruguay, and in Rhodesia under control, and it may not be unreasonable to expect that those two countries will eventually produce enormous quantities of beef.

The economic strength of swine has been demonstrated by 40 centuries of agriculture in China, during which time the reduction of farms to an area of a very few acres has permitted the hog, alone of meat animals, to survive. This animal is gradually increasing throughout the world, and its importance must grow if sheep continue to decline in numbers and cattle fail to produce the world's beef at moderate prices. The inference is not suggested, however, that other countries are to arrive at the conditions in China.

PER CAPITA ANIMALS.

If the foregoing conclusions are approximately correct for the absolute numbers of these three classes of meat animals, the truth is accentuated when comparison is made with increasing population.

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Sheep are far from maintaining their numbers in this comparison, and in some smaller degree cattle fail to do so, but in the case of swine there has been some gain above population in recent years, although it may be a small one.

EFFECTS OF WAR.

REDUCTION OF STOCKS OF MEAT ANIMALS.

The foregoing has been written without any allowance for the effects of the European war. After less than two years of war, the number of meat animals in the belligerent countries, and also in some of the neighboring countries, has declined. Various reports indicate that there has been unusual slaughter for food purposes, and also slaughter because feeds have been insufficient.

The effect of the Cuban rebellion, next preceding the independence of that country, was to reduce the cattle and sheep about 85 per cent and to reduce the swine by nearly 40 per cent, as shown by the census of 1899. Throughout the area devastated by the insurrectos, the live stock was practically exterminated. Spanish troops and revolutionists alike levied on all ranches. The military governor of Cuba in 1902 estimated that more than 95 per cent of the neat cattle and horses and more than 90 per cent of the hogs disappeared during the war.

At the conclusion of the Boer War, 1899–1902, the Orange Free State was practically depleted of live stock.

To what extent Mexico has lost cattle in the recent years of insurrection is not definitely known, but it is supposed that the cattle have been reduced in number throughout the extensive region covered.

The British Board of Agriculture and Fisheries estimates that during the year ending June 4, 1915, the number of cattle in the United Kingdom decreased 0.1 of 1 per cent, the sheep increased 1.1 per cent, and the number of swine decreased 4 per cent.

According to estimates of the Department of Agriculture of France, from December 1, 1913, in the whole Republic, to July 1, 1915, in territory unoccupied by the enemy, the number of cattle in France declined 17 per cent; sheep, 16.8 per cent; swine, 22.1 per cent; and goats, 67.7 per cent.

Some of the countries at war, also, are practically commandeering the exportable surplus of meat from Australia, New Zealand, Argentina, Uruguay, and Canada, practically commanding the surplus of the United States and also creating a beef surplus in this country.

It is apparent, therefore, that the European war has greatly disturbed the conditions of meat distribution from North and South America and Australasia. It has already unfavorably affected the number of meat animals of the countries at war, and perhaps of some nonbelligerent surplus countries.

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EXPORTS OF NINE SURPLUS COUNTRIES.

Meat is a food of high importance in meat-eating countries, but half the people of the earth eat little meat. The Asiatics, except the Siberians, are in this class. The meat eaters are conspicuously of Teutonic, Scandinavian, Slavic, Celtic, and Latin descent.

The countries having much surplus of meat for export are all meat-eating countries and are few in number. Nearly all of these countries derive their surplus beef and mutton from cheap land and the range, and in the United States the surplus pork and pork products are largely derived from corn.

Substantially all of the meat-surplus countries of the world are Argentina, Australia, Canada, Denmark in the specialty of bacon, Mexico (naturally), New Zealand, the United States, and Uruguay; Russia, really a deficiency country, is for the present purposes treated as a surplus country on account of its gross exports and potentiality, and is included with the foregoing eight countries. There are other countries that have a relatively small surplus, Paraguay and Madagascar, for instance, and many other countries that export relatively little while importing more, for example Germany and Italy; but the few countries of small original export movement all combined do not make a total of meat exports that is worth consideration, and of course the countries that import more than they export are countries of deficiency in meat production.

The nine countries with sufficient meat surplus to be worthy of consideration, as providing nearly all of the world's export trade in meat, supply many interesting facts with regard to this subject, some of which will be briefly examined.

In compiling statistics of the exports of meat animals, meat, and meat products from nine principal countries, the information has been taken from the official reports of those countries, and the period covered extends back to 1895 wherever possible. The classification of meat and meat products in these countries is far from being uniform and is often elaborate. Comparability of countries would be possible only to a small extent if the statistics were compiled in the original classification. To secure comparability, all classifications have been reduced to three great classes, namely, "Beef [or other meat], fresh, chilled, and frozen;" "Fats and oils;" "Other." Meat that is fresh, chilled, or frozen fills a place in trade very different from that of meats that are cured, pickled, salted, dried, or otherwise preserved, and consequently is placed in a class by itself, and the meats that have been prepared for indefinite keeping are included in the class of "Other." A separate class is made for "Fats and oils" on account of their characteristic general nature, and because they have more persistently forced their way into international trade than meats have done.

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The export of live meat animals has been somewhat handicapped by the fact that diseases have gone with the animals. For this reason the United Kingdom and other countries have at times excluded cattle from Argentina, Canada, and other countries. While in the earlier days of the beef-cattle industry in surplus countries cattle had to be exported, if at all, alive for want of adequate slaughtering and meat-exporting facilities, in later years the cheaper cost of transporting meat than live cattle, the highly organized and efficient slaughtering and exporting facilities, and the practical exclusion of live meat animals from international trade have combined to reduce the export of live meat animals to very small proportions compared with the amount of meat and meat products in this trade.

LIVE ANIMALS—CATTLE.

TOTAL OF NINE COUNTRIES.

[Table 4.]

The nine exporting countries covered by this compilation exported about 1,000,000 cattle from 1895 to 1906, after which year the number remained at about 800,000 until 1912.

FIG. 10.—Number of live animals exported from nine principal countries (Table 4).

UNITED STATES.

[Tables 5 and 6.]

About one-third of the exported cattle of the nine countries went from the United States in 1895, and the fraction increased to about three-fifths in 1904–1906, after which there was a rapid decline almost to extinction in 1914. As many as 593,409 cattle were exported from this country in 1904 and as few as 18,376 in 1914.

The bulk of the cattle shipments from the United States has been to the United Kingdom, yet there has been a perceptible movement into Canada, and from 1895 to 1909 into Cuba.

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OTHER COUNTRIES.

[Table 5.]

Argentina exported 400,000 cattle in 1895 and the number declined to 61,000 in 1908, from which there has been some recovery to 225,000 in 1913. Canada's exports of cattle were as high as 213,000 in 1898, but the number has steadily declined to 44,000 in 1913. After the markets of the United States were opened to foreign cattle in 1913 the Canadian exports rose to 219,729 cattle in 1914, followed by 185,903 cattle in 1915 (years ending Mar. 31), almost entirely to the United States. The cattle exports from Mexico have varied considerably, going as high as 314,000 in 1897 and as low as 46,000 in 1907. In later years the number increased and amounted to 282,000 cattle in 1912.

From Uruguay as many as 203,000 cattle were exported in 1909, but the number was usually much less for each year as far back as 1895. In 1912 the number was 77,000.

From all other of the nine countries the cattle exports have been of very small proportions.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

If the total cattle exports of the nine countries are thought of as 100 per cent, the cattle exports from Argentina and Mexico had increased so as to be about one-third each in 1912, the Canadian exports had decreased so as to be about 8 per cent in that year, the exports from Uruguay about 10 per cent, and from the United States about 13 per cent.

LIVE ANIMALS—SHEEP.

TOTAL OF NINE COUNTRIES.

[Table 4.]

The sheep exports of the nine countries 20 years ago were about 50 per cent greater than those of cattle, or about 1,500,000, but the number has dwindled more than the number of cattle has, so that by 1911 it had become 535,000, from which there was some recovery to 695,000 in 1912.

UNITED STATES.

[Tables 5 and 6.]

From an export of 406,000 sheep in 1895 and 492,000 in 1896 from the United States, the number declined to 45,000 in 1910, but afterwards increased to 187,000 in 1913 and 153,000 in 1914.

Nearly a quarter of the exports of sheep from the United States went to Canada in 1895–1904, and the fraction increased to 94 per cent in 1913. The United Kingdom received nearly all of the remaining exports, taking more than one-half of them from 1895–1909 and as small a fraction as 1 per cent in 1913.

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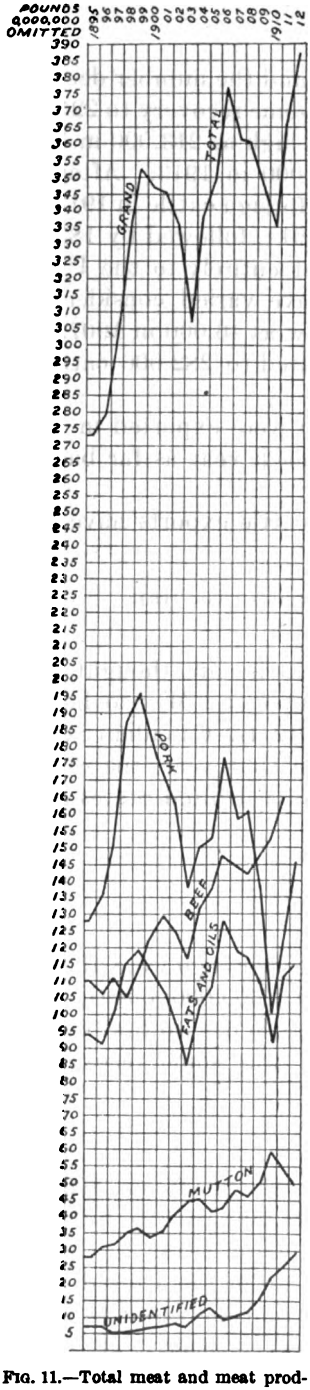

FIG. 11.—Total meat and meat products exported from nine principal countries (Table 4).

OTHER COUNTRIES.

[Table 5.]

Sheep exports from Argentina have declined from 500,000 and over during 1895–1899 to about 100,000 in very recent years; Canadian sheep exports have declined from 300,000 or 400,000 to 14,000; Mexican exports have varied enormously and were 7,000 in 1911 and 23,000 in 1912; from Russia these exports have declined from 100,000 in 1895 to 26,000 in 1912, but from Uruguay they have increased since 1900 so as to reach 320,000 in 1912. From Australia and New Zealand live sheep exports have been small, as also from all of the unmentioned nine countries.

LIVE ANIMALS—SWINE.

[Tables 4, 5, 6, and 7.]

The international movement of swine has been very small, and from 1895 to 1912 ranged from 78,000 to 169,000. The United States exports were as high as 59,000 in 1906 and as low as 4,000 in 1903, and most of these during the whole period since 1895 went to Cuba. Most of the swine exports of the nine countries have gone from Russia; the United States stands second but much below, while Mexico and Canada are of less importance.

MEAT AND MEAT PRODUCTS—TOTAL BEEF, MUTTON, AND PORK.

TOTAL OF NINE COUNTRIES.

[Table 4.]

The exports of meat and meat products from the nine countries under consideration reached their highest figure in 1912 with 3,861,000,000 pounds. The highest amount for any previous year was 3,778,000,000 pounds in 1906. The general level of these exports from about 1898

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to 1911 was about 3,500,000,000 pounds. The smallest total during the 18 years was 2,734,000,000 pounds in 1895.

It seems reasonable to say that in 1912 the world's total export of meat and meat products from surplus countries was not greater than about 4,000,000,000 pounds, or not more than about 150,000,000 pounds above the total for the nine countries.

UNITED STATES.

[Table 5.]

So erroneous and so misinformed has been the recent public opinion of the United States with regard to meat production and consumption in this country that little attention has been paid to the fact that in 1914 the exports of meat and meat products amounted to as much as 1,115,000,000 pounds. During 1915 (year ending June 30 as before), however, the European war caused increase of exports and they amounted to 1,544,000,000 pounds of meat and meat products, in which fresh, chilled, and frozen beef again became prominent. Certainly as late as 1913 the United States exceeded Argentina as an exporter of meat and meat products, and of course no other country is a competitor for first place.

The highest amount of exports of meat and meat products ever sent out of this country was 2,311,000,000 pounds in 1899, to which there had been an increase from 1,530,000,000 pounds in 1895. Subsequent to 1899 there was a decrease with fluctuations to 1,037,000,000 pounds in 1910, after which the exports were 1,193,000,000 in 1911, 1,356,000,000 in 1912, 1,196,000,000 in 1913, 1,115,000,000 in 1914, and 1,544,000,000 in 1915.

Principal countries to which consigned.

[Table 6.]

The United Kingdom has been by far the principal meat customer of the United States. That country received over 58 per cent of this country's exports of meat and meat products from 1895 to 1904, but the fraction has steadily declined to 41 per cent in 1913. Germany stands next in importance as a customer, receiving a nearly uniform fraction of our exports of meat and meat products, ranging since 1895 from about 13 to 18 per cent. The Netherlands has gained in importance as a customer and has increased its fraction from 8 to about 12 per cent since 1895.

Next in order is Cuba, which has increased its takings of meat and meat products from this country from 2 per cent in 1895–1904 to over 6 per cent in 1913. Belgium has taken about 3½ per cent; Canada's fraction has increased from about 1½ to 3½ per cent. Other countries are of less account.

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OTHER COUNTRIES.

[Table 5.]

Argentina exported 1,149,000,000 pounds of meat and meat products in 1913, or 47,000,000 pounds less than the United States did in that year. The exports of meat and meat products from that country in 1911 and 1912 were slightly above the amount for 1913. In 1895 Argentina exported 313,000,000 pounds of meat and meat products; there was a rapid decline to 251,000,000 pounds in 1899, after which the increase was remarkably strong to 1,204,000,000 pounds in 1912, followed by a decline of about 55,000,000 pounds for the next year.

Third in importance among the surplus meat-exporting countries is Australia, but the quantity is abruptly changeable. As far back as 1895 the export of meat and meat products from that colony was 365,000,000 pounds, but the quantity declined quickly to 240,000,000 pounds in 1898, and again to 137,000,000 pounds in 1903, at a time when severe drought had greatly reduced sheep. Since that disastrous year, the exports of meat and meat products from Australia rapidly increased to 485,000,000 pounds in 1910, but a decline followed to 423,000,000 pounds in 1912.

The fourth place is held by New Zealand, from which the exports of meat and meat products have increased from 157,000,000 pounds in 1895 to 357,000,000 pounds in 1910. In 1911, however, the quantity fell to 298,000,000 pounds.

The intelligent procedure by which Denmark has built up an enormous export trade in bacon has won wide admiration. That country exported 263,000,000 pounds of bacon and hams in 1912, or the largest amount in its history, and this quantity had grown from 134,000,000 pounds in 1895.

Uruguay, as late as 1912, was far from reaching the total export of New Zealand, and had made no such remarkable growth. In 1895 Uruguay exported 168,000,000 pounds of meat and meat products, but the amount had fallen to 129,000,000 pounds by 1902, after which there were fluctuations rising as high as 204,000,000 pounds in 1910, and falling as low as 150,000,000 pounds in 1905. The exports for 1912 were 184,000,000 pounds.

Canada has fallen away as an exporter of meat and meat products since its high-water mark of 165,000,000 pounds in 1905, to which the quantity had risen from 53,000,000 pounds in 1895. The decline to 46,000,000 pounds in 1913 registered a loss of 72 per cent of the exports of 1905. The exports of 1913 were only about 60 per cent of the year preceding.

Russia has grown to be a meat-exporting country of some account, and in 1912 shipped 55,000,000 pounds of meat and meat products to foreign countries. These exports had grown from 15,000,000 pounds in 1895.

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Mexico has exported little meat and meat products. The quantity has never exceeded the 402,000 pounds of 1911, except in 1899 with 707,000 pounds and in 1910, when there was an extraordinary export of 1,581,000 pounds.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

In the grand total exports of meat and meat products from the nine countries under consideration the importance of the United States fell away one-half from 1895–1904 to 1910, or from 60 per cent of the total to 31 per cent; but since 1910 the relative position of the United States has become stronger, so that in 1912 this country exported 35 per cent of the total of the nine principal surplus countries.

Argentina gained rapidly from 11 per cent in 1895–1904 to 32 per cent in 1911, but dropped to 31 per cent in 1912.

Australia gained in the grand total of the nine countries from 7.6 per cent in the earlier years to 14.5 per cent in 1910, from which the fraction fell to 11 per cent in 1912.

New Zealand, like Australia, increased its fraction to 1910 and afterwards suffered a decline, the course of the percentage being from 7 in the earlier years to 11 in 1910 and then to 7.7 in 1912.

Denmark's bacon and ham exports are a considerable fraction of the entire exports of meat and meat products from the nine surplus countries. Beginning with a fraction of 4.8 per cent of the grand total in the earlier years, the bacon and hams of this little country grew to 6.8 per cent in 1912.

Uruguay's exports grew to 6 per cent of the total for the nine countries in 1910, but subsequently declined to 4.8 per cent in 1912.

Canada had 3.5 per cent of the total export trade of the nine countries in meat and meat products in the earlier years, but the fraction declined to 1.8 per cent in 1911, followed by 2 per cent in 1912.

Russia's export trade in meat and meat products had grown to be 1.4 per cent of the grand total in 1912. Mexico's fraction is too small for expression.

MEAT AND MEAT PRODUCTS—TOTAL FATS AND OILS.

TOTAL OF NINE COUNTRIES.

[Table 4.]

This group of meat products has remained quite uniform for 18 years at about 1,000,000,000 pounds in the total exports of the nine surplus countries under consideration. The quantity was no lower than 852,000,000 pounds in 1903, and was as high as 1,280,000,000 pounds in 1906, but this was an exceptionally large quantity. The exports of fats and oils in 1912 were 1,158,000,000 pounds, a quantity that has been exceeded in only four years.

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UNITED STATES.

[Tables 5 and 6.]

Fats and oils are the strongest feature of the export trade of the United States in meat and meat products. This group of commodities weighed 593,000,000 pounds in the exports of 1895 and the quantity soon grew to 975,000,000 pounds in 1899, after which it declined to 654,000,000 pounds in 1903, quickly followed by the high-water mark of 1,063,000,000 pounds in 1906. Thereafter the decline was rapid to 523,000,000 pounds in 1910, followed by an increase to 766,000,000 pounds in 1912, with again a decline to 630,000,000 pounds in 1914, and to 620,000,000 pounds in 1915.

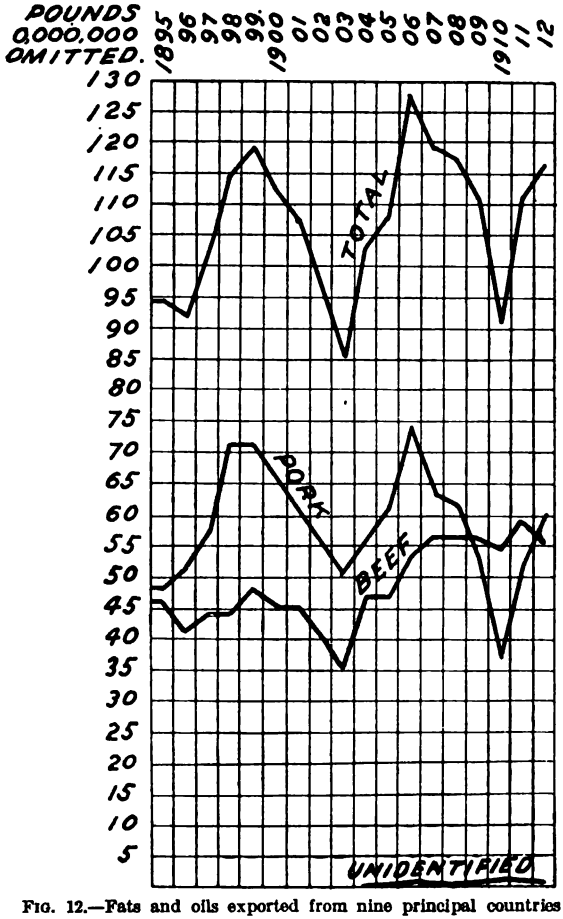

FIG. 12.—Fats and oils exported from nine principal countries (Table 4).

More than one-half of these fats and oils has been exported about equally to the United Kingdom and to Germany, and the former country took about 30 per cent of them in 1895–1904, but the fraction had declined to about 27 per cent in 1913. Germany received nearly 27 per cent of them in the earlier years and 27.6 per cent of them in 1913.

A leading use of the beef fat imported by European countries is for making oleomargarin, and this industry has developed so largely in the Netherlands that a large fraction of the beef tallow exported from this country has gone to that one, constituting over one-sixth of the exports of fats and oils from this country.

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On the other hand, Cuba has taken lard, and this has been about 6 or 7 per cent in recent years of the total exports of fats and oils from the United States.

Belgium has taken about 3.5 per cent of the exports of fats and oils of this country for making oleomargarin. Canada has received a growing fraction, reaching 3.6 per cent in 1913 for various uses. France has taken 2 to 4 per cent, Norway as much as 2 per cent, and other countries smaller fractions.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

The United States is of more importance in the export of animal fats and oils than all of the other eight countries under consideration combined. More than three-quarters of the total exports of fats and oils were from this country from 1895 to 1909, as a general average. In 1910 the fraction was only 57 per cent, but it grew to 66 per cent in 1912, or about two-thirds of what may be regarded as the world's surplus exports of fats and oils.

Argentina is now easily second in importance, but it is far below the United States, since its fraction of the world's surplus trade in animal fats and oils is only about 16 per cent. Australia has about 11 per cent of this trade, New Zealand 4 per cent, and Uruguay over 3 per cent. In the other countries the fraction is a mere trace.

MEAT AND MEAT PRODUCTS—BEEF: TOTAL.

TOTAL OF NINE COUNTRIES.

[Table 4.]

The total exports of the nine surplus countries under consideration in beef and beef products increased from about 1,100,000,000 pounds in 1895 to 1,649,000,000 pounds in 1912, a gain of about 50 per cent in 18 years, and this gain has been quite uniformly distributed throughout the period.

UNITED STATES.

[Tables 5 and 6.]

This country has played a striking part in the course of its contribution to this class of meat and meat products. Beginning with exports of 433,000,000 pounds of beef and beef products in 1895, the amount grew to 705,000,000 pounds in 1901, sagged to 546,000,000 pounds two years afterwards, and rebounded to 734,000,000 pounds in 1906, after which year the decline was to 151,000,000 pounds in 1914, little of which was fresh, chilled, or frozen beef; but the exports expanded to 395,000,000 pounds in 1915 on account of the European war.

Twenty years ago the United Kingdom took more than one-half of the exports of beef and beef products from the United States, but,

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as that country found that it must depend more and more on Argentina and other countries for meat, it has taken a smaller and smaller fraction of this country's exports until the fraction fell to 14 per cent in 1913.

On account of its demand for great quantities of beef tallow, the Netherlands has increased its takings of exports of beef and beef products from this country from 14 per cent in the earlier years to 30 per cent and over in 1912 and 1913.

In the meantime Germany received a larger and larger fraction, beginning with about 8 per cent of our exports of beef and beef products in the earlier years and reaching 14.4 per cent in 1913.

France rapidly increased its imports of this class of meat from the United States in very recent years, and the fraction of this country's exports going to that country increased from 1.4 per cent in 1910 to 4.7 per cent in 1913. This last percentage represents Norway in the later years. From 2 to 3 per cent of this country's exports of this class of meat and meat products have been taken in the later years by Belgium, British West Indies, and Denmark.

OTHER COUNTRIES.

[Table 5.]

Argentina's export trade in beef and beef products grew enormously from 116,000,000 pounds in 1899 to 970,000,000 pounds in 1913. Australia is maintaining a larger export trade in beef and beef products than ever before. The beef-producing industry supplied an export of 250,000,000 pounds in 1895, but disasters caused a decline to 89,000,000 pounds in 1903, after which year the increase was rapid to 263,000,000 pounds in 1912.

Uruguay follows Australia as an important beef-exporting country. As long ago as 1895 its exports amounted to 167,000,000 pounds, and by 1904 the amount had become 177,000,000 pounds, but there had been some fluctuations in the meantime. Subsequent to 1904 the exports have not been so large as before that year, and by 1912 had fallen to 124,000,000 pounds.

New Zealand has had a fluctuating export trade in beef and beef products, but on the whole the quantity grew from 31,000,000 pounds in 1895 to 109,000,000 pounds in 1910, but there was great decline in the following year to 69,000,000 pounds.

Canada has a small and erratic record in exports of beef and beef products. As long ago as 1895, 5,700,000 pounds were exported, but in the next year only 432,000 pounds. The largest export was 11,443,000 pounds in 1901; subsequent to that year the exports have ranged from 1,000,000 to about 4,500,000 pounds annually.

Exports of beef and beef products from Russia and Mexico have been too small for mention.

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PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

Since 1910 Argentina has supplied more than one-half of the beef and beef products exported by the surplus countries under consideration. In 1912 the fraction was 58 per cent.

In the 10 years 1895–1904, the United States contributed 51 per cent of the total exports of beef and beef products of these countries; but the percentage declined to 42 during the five years 1905–1909, and thereafter rapidly fell to 14 per cent in 1912.

In 1912 Australia passed the United States as an exporter of beef and beef products, and contributed 16 per cent to the grand total exports of the nine surplus countries. This change in relative position, however, was because of the great decline of the United States, since Australia had a slight decline after 1910. In the beef export trade of the nine countries Australia has relatively gained little since the 10-year period, 1895–1904, during which time that country contributed 13 per cent to the total of these countries.

As a factor in the export trade in beef and beef products Uruguay has relatively declined in its contribution to the total from 13.3 per cent in 1895–1904 to 7.5 per cent in 1912.

New Zealand in 1912 occupied a lower place relatively in the total trade of these countries in beef and beef products than it has occupied since the earlier years. In the year mentioned its fraction of the total trade was 4.2 per cent, whereas in the 10 years 1895–1904 its fraction was 4.7 per cent. There was an increase from the earlier years to 7.2 per cent in 1910, but the subsequent decline has been relatively great.

Canada's share of the total export trade of beef and beef products is only 0.1 or 0.2 of 1 per cent, and in the earlier years did not average more than 0.3 of 1 per cent.

MEAT AND MEAT PRODUCTS—BEEF: FRESH, CHILLED, AND FROZEN.

TOTAL OF NINE COUNTRIES.

[Table 4.]

This export trade has increased enormously in the 18 years ending with 1912. The nine surplus countries exported 265,000,000 pounds of fresh, chilled, and frozen beef in 1895, and increased the amount until in 1912 it became 913,000,000 pounds.

UNITED STATES.

[Tables 5 and 6.]

The bulk of the exports at the beginning of the period under consideration was supplied by the United States. The quantity derived from this country rapidly increased from 191,000,000 pounds in 1895 to 352,000,000 pounds in 1901, which was high-water mark, but the quantity remained high to 1907, in which year these exports were

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282,000,000 pounds. In the next year the amount fell to 201,000,000, followed successively by 123,000,000 pounds in 1909, 76,000,000 pounds in 1910, 43,000,000 pounds in 1911, 15,000,000 pounds in 1912, 7,000,000 pounds in 1913, and only 6,000,000 pounds in 1914, substantially an extinction of this trade, but the demands of the belligerent European nations raised the exports to 170,000,000 pounds in 1915.

The United States practically dominated the world's export trade in fresh, chilled, and frozen beef 10 to 20 years ago, with its contribution of over 63 per cent to the total export trade of the nine surplus countries as an average for the 10 years 1895–1904. For the next five years the average fell to 33 per cent, and in the next year, 1910, the fraction was 9.4 per cent, in 1911, 4.9 per cent, and in 1912 only 1.6 per cent.

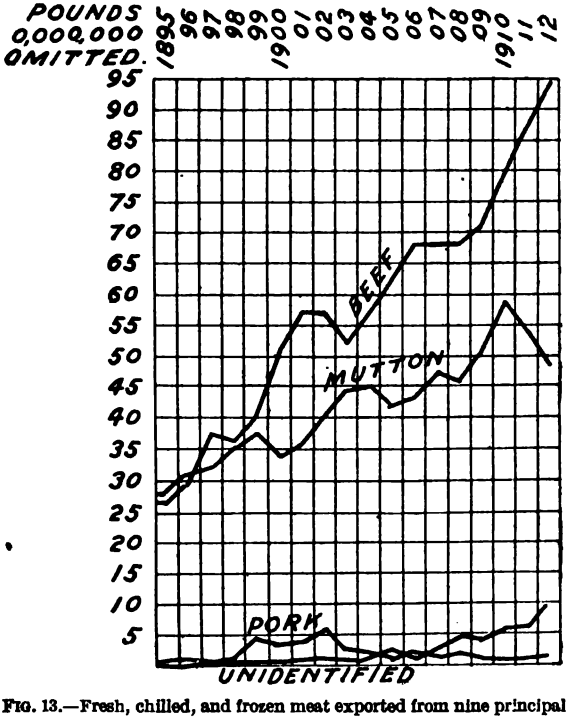

FIG. 13.—Fresh, chilled, and frozen meat exported from nine principal countries (Table 4).

While the United States was suffering this downfall in exports of fresh, chilled, and frozen beef, Argentina grew from 17 per cent of the total export trade in the earlier years to 80 per cent in 1912. If to this be added the 15 per cent due to Australia, and 3 per cent due to New Zealand, in 1912, almost the entire export trade in this class of beef is accounted for.

OTHER COUNTRIES.

[Table 5.]

During the period of decline for the United States, Argentina readily supplied the deficiency. Indeed, Argentina in 1913 exported more than twice as much fresh, chilled, and frozen beef as the United States ever did in one year, the quantity being 807,000,000 pounds. This trade in 1895 was only 3,500,000 pounds. In 1905, Argentina passed the United States as an exporter of this meat.

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Australia passed the United States in the export of fresh, chilled, and frozen beef in 1910, and in 1912 the exports amounted to 142,000,000 pounds, having grown from 69,000,000 pounds in 1895, and 52,000,000 pounds in 1896.

New Zealand also, an exporter of this class of beef, passed this country in 1912. From the small beginning of exports amounting to only 1,350,000 pounds in 1895, New Zealand rapidly developed this export trade to 35,000,000 pounds in 1900, but the quantity fell off largely within a few years to 16,000,000 pounds in 1905, after which the quantity again rose rapidly to 57,000,000 pounds in 1910, but the amount dropped to 27,000,000 pounds in 1911.

At no time, to 1913, has Canada had an export trade in this class of beef, nor, to 1912, have Mexico, Russia, and Uruguay, except for the last country a sporadic export of less than 7,000 pounds in 1905.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

It is instructive to observe the shifting of surplus countries in relative position in the export of fresh, chilled, and frozen beef during the 18 years. The United States had the leading place during the 10 years 1895–1904, during which time it contributed over 63 per cent to the total export trade of these surplus countries in this class of beef, but in the next 5 years, 1905–1909, this country fell to 33 per cent, in 1910 to 9.4 per cent, in 1911 to 5 per cent, and in 1912 to 1.6 per cent.

During this long period of years, New Zealand increased its contribution from 4 per cent in 1895–1904 to 7 per cent in 1910, after which there was a decline to 3 per cent in 1912.

Australia substantially held the same relative position from beginning to end, with some depression in the intermediate years. Its fraction of this trade in 1912 was 15 per cent.

Therefore it appears that Argentina's enormous increase in exports of chilled and frozen beef has not only equaled the loss from the exports of the United States and the comparatively small loss from the exports of New Zealand, but has immensely increased the total exports of the surplus countries as well. Also, observation of decrease in the number of cattle in prominent countries of deficient beef production indicates that Argentina has also been supplying beef to offset growing deficiencies in some of those countries.

MEAT AND MEAT PRODUCTS—BEEF: FATS AND OILS.

TOTAL OF NINE COUNTRIES.

[Table 4.]

The beef fats and oils have not increased in the export trade to anywhere near the degree that fresh, chilled, and frozen beef has.

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From 1895 to 1911 these fats and oils in the export trade of the nine countries increased from 461,000,000 pounds to 586,000,000 pounds, a larger amount than for any preceding year, and then fell to 553,000,000 pounds in 1912. It is a persistent trade, on account of the active demand for beef tallow in Europe.

UNITED STATES.

[Tables 5 and 6.]

The export trade of this country in beef fats and oils has by no means suffered the extinction that the export trade in fresh, chilled, and frozen beef almost did in 1914, yet its decline in recent years is very marked. The exports of these fats and oils increased from 114,000,000 pounds in 1895 to 256,000,000 pounds in 1899, and thereafter declined to 161,000,000 pounds in 1903, but the subsequent increase was rapid to 328,000,000 pounds in 1907, followed by a decided drop to 118,000,000 pounds in 1914, followed by 117,000,000 pounds in 1915.

For many years, the Netherlands took about two-fifths of the exports of beef fats and oils from this country, and Germany about one-sixth. The United Kingdom received over one-tenth in later years; Belgium, France, and Norway from 2 to 6 per cent, and Sweden, Denmark, and Italy still smaller fractions.

OTHER COUNTRIES.

[Table 5.]

Argentina has increased its exports of beef fats and oils from 89,000,000 pounds in 1895 to 154,000,000 pounds in 1913, but the latter amount was much exceeded in 1911 and 1912.

Australia's exports in these fats and oils were 181,000,000 pounds in 1895, from which there was a decline to 28,000,000 pounds in 1903, but there was a rise to 153,000,000 pounds in 1911, followed by a drop to 121,000,000 pounds in 1912.

New Zealand's exports of beef fats and oils have ranged from 25,000,000 pounds to 51,000,000 pounds since 1895, the latter amount being for 1910. In 1911, however, the quantity fell to 41,000,000 pounds.

Uruguay maintains about the same place that is occupied by New Zealand in the export of these fats and oils, although it began the period under review with a higher place than that occupied by New Zealand. On the whole, the exports from Uruguay have declined from 46,000,000 pounds in 1895 and 1896 to about 40,000,000 pounds in 1912.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

To the total exports of beef fats and oils from the nine surplus countries, the United States contributed 46 per cent in 1895–1904,

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and 53 per cent in 1905–1909. During 1910, 1911, and 1912 the fraction remained constant at about 30 per cent.

Australia had a growing importance until 1910, when its fraction of this export trade reached 27 per cent, but by 1912 this had decreased to 22 per cent. New Zealand's fraction in 1912, 7.3 per cent, is a little below its average for the 10-year period beginning with 1895; and Uruguay, with 7.2 per cent in 1912, barely equals its average percentage for the whole period under review.

It has remained for Argentina to supply what has been lost in the export trade of the United States in beef fats and oils; that country's fraction of the total increased from 17 per cent in 1895–1904 to 33 per cent in 1912.

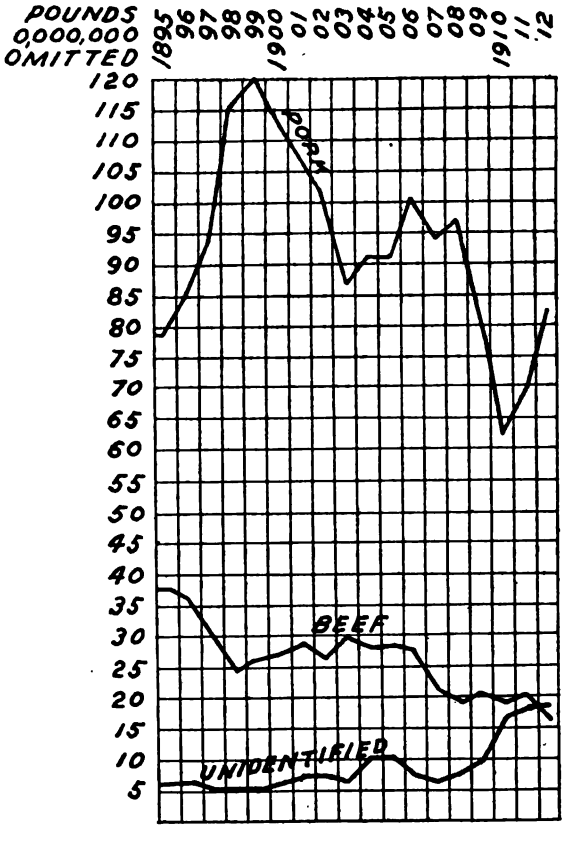

FIG. 14.—Meat and meat products other than fresh, chilled, and frozen meat and fats and oils exported from nine principal countries (Table 4).

MEAT AND MEAT PRODUCTS—BEEF: OTHER.

TOTAL OF NINE COUNTRIES.

[Table 4.]

The beef-importing part of the world has more and more demanded fresh, chilled, and frozen beef; in a much less degree it has increased its demand for beef fats and oils; but its demand for pickled, salted, cured, and other preserved beef has greatly declined. In 1895, the nine surplus countries here under consideration exported 376,000,000 pounds of this miscellaneous class of beef, and during no subsequent year has this amount been equaled; indeed, the amount has persistently and with regularity declined to 195,000,000 pounds in 1911, and to 155,000,000 pounds in 1912. During 18 years, the nine countries lost three-fifths of this trade, or rather it may be said that the loss was offset by the gain of fresh, chilled, and frozen beef.

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UNITED STATES.

[Tables 5 and 6.]

The exports of this miscellaneous class of beef from the United States have declined to comparatively small proportions since 1895, when 127,000,000 pounds were exported. Although, in 1906, a year of overslaughtering, 146,000,000 pounds of this miscellaneous class of beef were exported, in the following year, 1907, the amount fell to 80,000,000 pounds, and thereafter declined to 27,000,000 pounds in 1914, four times the quantity of exported fresh, chilled, and frozen beef, but less than one-quarter of the exports of beef fats and oils. In 1915 European demands increased these exports to 107,000,000 pounds.

The United Kingdom has been the principal customer of this country in taking this miscellaneous class of beef, but that country has taken a less and less fraction until, in 1913, the fraction was 28 per cent. Germany has been the customer next in importance and has taken about 10 per cent of this country's exports of this miscellaneous class of beef during the 18 years. Smaller fractions have been distributed to Norway, British West Indies, Canada, Belgium, the Netherlands, British South Africa, Cuba, Denmark, and France.

OTHER COUNTRIES.

[Table 5.]

Uruguay has been quite as prominent as the United States in the exports of this miscellaneous class of beef for many years, and in the later years more prominent. Uruguay's exports in 1895 were 121,000,000 pounds, and by 1904 the quantity had reached 131,000,000 pounds, but no subsequent year has equaled this; in 1910, the quantity was 115,000,000 pounds, and in 1912 only 84,000,000 pounds, or a quantity lower than for any year during the period under review.

Twenty years ago, Argentina had a larger export trade in this miscellaneous class of beef than it has since had during the 18 years under review. A steady and marked decline from 121,000,000 pounds in 1895 has followed to 9,000,000 pounds in 1913.

Canada in 1901 had a trade in this miscellaneous class of beef amounting to nearly 10,000,000 pounds, but in no other year has this quantity been nearly approached. In the following year the quantity was 4,300,000 pounds, and afterwards the decline was to 950,000 pounds in 1912 and 1,600,000 pounds in 1913.

New Zealand has had a small trade in this miscellaneous class of beef, which rose to 1,500,000 pounds in 1909, and afterwards declined to 1,200,000 pounds in 1911.

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PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

As far back as 1895 Uruguay has held leading place in exports of this miscellaneous class of beef. This is largely because of exports of jerked or dried beef. This country, however, is losing its relative position since, although it supplied 40 per cent of the total of the nine exporting countries during the 10 years 1895–1904, and increased the fraction to 60.5 per cent in 1910, there has been a subsequent decline to 54 per cent in 1912, mainly on account of relative increase of this class of exports from the United States, which from 1910 to 1912 were nearly 30 per cent of the total. During many previous years the United States had supplied about two-fifths of the total.

Since 1905, Argentina has supplied about one-ninth to one-eighth of this trade, but in former years, when jerked beef was more prominent in the export trade of that country, the fraction was about one-fifth.

Australia does not separately report preserved beef; New Zealand and Canada export less than 1 per cent each.

BEEF EXPORTS SUMMARY.

Briefly reviewed, the beef export statistics show that the demand for fresh, chilled, and frozen beef by importing countries has enormously increased during the last 20 years, during which time the United States lost its dominating position by 1914 and became an importer of more beef of this sort than it exported by 240,000,000 pounds in that year.

Argentina has taken the lost position of the United States in the supply of fresh, chilled, and frozen beef, and made it immensely more important than the United States did.

Uruguay is now beginning to supplement Argentina's great supply of fresh, chilled, and frozen beef with a small production, and the expectation is that this production will rapidly increase. If Argentina is to continue to slaughter cattle to the limit, as has been done since 1908, the new supply of fresh, chilled, and frozen beef from Uruguay may be of some moment to the increasing world's demand.

Australia and New Zealand are apparently in a stationary or declining position in the supply of this kind of beef.

The great demand for fresh, chilled, and frozen beef throughout the meat-eating world from surplus countries has threatened an overslaughter of cattle in recent years; indeed, it is known that there has been overslaughter at times from this cause, but there is a complication with other causes of overslaughter, as, for instance, conversion of range into farms, high prices of beef cattle, shortage and high costs of pasturage and feed, etc.

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Beef that is dried, salted, pickled, and otherwise preserved has greatly lost its old-time relative position in the world's trade in favor of fresh, chilled, and frozen beef, but beef tallow finds an enduring demand for manufacture into oleomargarin.

In the supply of export fresh, chilled, and frozen beef, Argentina now handles the bulk of the trade, and Australia and New Zealand handle the remainder, except that the United States reappeared in 1915, perhaps temporarily.

Argentina and the United States each supply nearly one-third of the beef fats and oils, Australia about one-fifth, and New Zealand and Uruguay each about 7 per cent.

More than one-half of the variously preserved beef is supplied by Uruguay, nearly one-third by the United States, and about one-eighth by Argentina.

Thus it appears that the export supply of beef and beef products of the world is highly centralized, with three-fifths going from Argentina, one-seventh going each from Australia and the United States (1912), and smaller but appreciable fractions going from Uruguay and New Zealand.

MEAT AND MEAT PRODUCTS—MUTTON.

TOTAL OF NINE COUNTRIES.

[Table 4.]

Exported mutton is all frozen, and there are almost no mutton products that are itemized in the foreign trade statistics of the nine surplus countries under consideration. Mutton tallow is mentioned by one country.

The mutton exports of the nine surplus countries were 283,000,000 pounds in 1895, and, with fluctuations, they increased to 414,000,000 pounds in 1902, 498,000,000 pounds in 1909, and to 594,000,000 pounds in 1910. This increase of about 100,000,000 pounds from 1909 to 1910 was followed by a decrease to 541,000,000 pounds in 1911, and to 489,000,000 pounds in 1912.

UNITED STATES.

[Tables 5 and 6.]

The United States has never been an exporter of mutton in sufficient quantity to find a separate statement in the export statistics of this country until 1877; in 1895, 591,000 pounds were recorded. The quantity increased to 2,000,000 pounds in 1910, to 3,600,000 pounds in 1912, to 5,300,000 pounds in 1913, and in 1914 dropped to 4,700,000 pounds and to 3,877,000 pounds in 1915.

Most of this exported mutton went to Canada in recent years. From 1907 to 1909, 16 per cent of the total mutton exports from this country went to Canada, and the fraction rapidly increased to 80

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per cent in 1913. During this period the exports to the United Kingdon declined from 43 per cent to 10 per cent of the total.

OTHER COUNTRIES.

[Table 5.]

New Zealand is by far the principal mutton-exporting country, but seems to occupy a stationary position in quantity of exports since 1902. Twenty years ago, this country exported 121,000,000 pounds of mutton, and, with fluctuations, the quantity increased to over 228,000,000 pounds in 1903. No subsequent year has equaled this amount, but in 1909 the quantity reached 223,000,000 pounds, and in 1910 less than 228,000,000 pounds, or very nearly the quantity of 1903. In 1911, the exports were 212,000,000 pounds, a quantity that has been exceeded in only three years.

Argentina may safely be regarded as second in importance in exports of mutton, although Australia has exceeded it in a few years. In 1895, Argentina exported 92,000,000 pounds of mutton, and the quantity rapidly increased to 195,000,000 pounds in 1904, a quantity that has not subsequently been equaled, but, although the quantity descended as low as 147,000,000 pounds in 1909, it rose as high as 189,000,000 pounds in 1911, but since that year the quantity fell to 101,000,000 pounds in 1913.

The course of mutton exports from Australia began, as far as this survey goes, with 66,000,000 pounds in 1895, jumped to 85,000,000 pounds the next year, but descended to 36,000,000 pounds by 1903, after which it rose to 117,000,000 pounds in 1909, followed by a great increase to 190,000,000 pounds in 1910, followed by a great decline to 115,000,000 pounds in 1912.

Uruguay exported as much as 9,600,000 pounds of mutton in 1909, but the quantity for 1912 was only 3,300,000 pounds, or a little under the United States for that year, and over 1,000,000 pounds below the United States export of 1914. Mutton exports from other countries are too small to be mentioned.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

During the 10 years 1895–1904, New Zealand exported over 45 per cent of the total mutton exports of surplus countries, during the five years 1905–1909 over 42 per cent, in 1910 over 38 per cent, and in 1912 over 43 per cent.

Argentina's mutton exports have been about one-third of the total during the 18 years under review, but on the whole have declined from 37.5 per cent in the 10 years 1895–1904 to 31.6 per cent in 1912.

Australia's mutton exports increased from 16.4 per cent of the total in the earlier years to 32 per cent in 1910, after which there was

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a decline to 23.6 per cent in 1912. The United States and Uruguay in 1912 each exported 0.7 of 1 per cent of the total. Exports from other countries are too small for mention.

Thus it appears that New Zealand, Argentina, and Australia supply nearly the entire export of mutton.

MEAT AND MEAT PRODUCTS—PORK: TOTAL.

TOTAL OF NINE COUNTRIES.

[Table 4.]

Pork exports from the nine countries under review have ranged in the total from 1,000,000,000 to 2,000,000,000 pounds during the 18 years, but for most of the years the quantity has been about 1,500,000,000 pounds. The highest quantity was reached in 1899, and the lowest in 1910. Since the latter year, the quantity has increased to 1,436,000,000 pounds. From 1909 to 1912 the exports show some falling away from the record for previous years extending back to 1897.

UNITED STATES.

[Tables 5 and 6.]

This country is by far the leading one in exports of pork and pork products, although the quantity declined in later years. In 1895 these exports amounted to 1,096,000,000 pounds, and the quantity quickly increased to 1,685,000,000 pounds in 1899, from which year there was a decline to 1,045,000,000 pounds in 1903, followed by an increase to 1,467,000,000 pounds in 1906, with a great decline to 708,000,000 pounds in 1910. There was considerable recovery after that year, and these exports increased to 1,074,000,000 pounds in 1912, after which the decrease was to 923,000,000 pounds in 1914, but a great gain followed to 1,107,000,000 in 1915.

Nearly one-half of this pork went to the United Kingdom in recent years, and more than one-half in previous years. The fraction for the 10 years 1895–1904 was 57 per cent, and this increased to 62 per cent in 1910, but after that year the decline was to 47 per cent in 1913.

Germany was next in importance as a customer of this country in receiving exports of pork and pork products. The fraction increased from 15 per cent in the earlier years to 18 per cent in 1913.

The Netherlands is next in order as a customer with 5 to 8 per cent, and Cuba follows with 3 to 7 per cent. Belgium follows closely, and then Canada, France, and Italy.

OTHER COUNTRIES.

[Table 5.]

Denmark has built up such a large export trade in bacon and to much less degree in hams that it is next below the United States as an exporter of pork and pork products, although far below. These

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exports increased from 134,000,000 pounds in 1895 to 263,000,000 pounds in 1912, without great intermediate fluctuations.

Canada also has made a specialty of bacon, and this with other pork products has given to Canada an export trade that amounted to as much as 146,000,000 pounds in 1903. This was an enormous increase above the 42,000,000 pounds of 1895, but since 1903 the Canadian exports of bacon and other pork products have steadily declined until the quantity of 1913 was only 39,000,000 pounds.

Russia has been developing an export trade in pork and pork products in recent years until in 1912 the quantity reached 29,000,000 pounds, or nearly the quantity of the Canadian exports in the following year. This export had grown from 6,000,000 pounds in 1895.

The Australian exports of pork and pork products did not pass beyond 1,000,000 pounds until 1904, when the quantity was 1,653,000 pounds. The next year it reached 4,372,000 pounds, in 1910, 5,451,000 pounds, and in 1911, 7,379,000 pounds, but in 1912 the quantity fell to 5,000,000 pounds.

New Zealand's exports of pork and pork products have fallen a little short of reaching 2,000,000 pounds in 1910 and 1911, and this trade has grown from 284,000 pounds in 1895.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

In the total export trade of the nine countries under consideration in pork and pork products the share of the United States was 83.5 per cent during the 10 years 1895–1904, and this declined to 71 per cent in 1910, but there was increase in the following years to 75 per cent in 1912.

Denmark's fraction has remained at about one-fifth from 1910 to 1912, and this fraction represents an increase from an average of 9.5 per cent for the 10 years 1895–1904.

Canada exhibits a declining fraction from 6 per cent for 1895–1904 to 4.4 per cent in 1912. Russia's share is about 2 per cent in later years.

MEAT AND MEAT PRODUCTS—PORK: FRESH, CHILLED, AND FROZEN.

TOTAL OF NINE COUNTRIES.

[Tables 4, 5, 6, and 7.]

Fresh, chilled, and frozen pork has been of exceedingly small consequence in export trade, and has hardly been of sufficient account to supplement appreciably the export trade in fresh, chilled, and frozen beef and mutton. However, there was some increase in this trade, from 5,000,000 pounds in 1895 to 56,000,000 pounds in 1902, but since that year the total quantity has declined to 10,000,000 pounds in 1910 and 1911, after which there was increase to 14,000,000 pounds in 1912.

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MEAT AND MEAT PRODUCTS—PORK: FATS AND OILS.

TOTAL OF NINE COUNTRIES.

[Table 4.]

In international trade hog lard has a high importance, although not as high as that of the cured pork. The exports of pork fats and oils of the nine countries were 481,000,000 pounds in 1895, followed by increase to 722,000,000 pounds in 1899, after which there was decline to 498,000,000 pounds in 1903. Again there was increase, a quick one, to 745,000,000 pounds in 1906, a quantity that was never equaled either before or after. A quick descent to 370,000,000 pounds in 1910 followed, from which there was some recovery to 599,000,000 pounds in 1912.

These figures indicate quick losses and quick recoveries in the case of pork fats and oils.

UNITED STATES.

[Tables 5 and 6.]

As may be expected, almost the entire exports of pork fats and oils have been from the United States. They increased from 479,000,000 pounds in 1895 to 718,000,000 pounds in 1899, and, after descending to 493,000,000 pounds in 1903, rapidly rose to 745,000,000 pounds in 1906, after which there was decline again, this time to 364,000,000 pounds in 1910, followed by increase to 596,000,000 pounds in 1912, with subsequent descent to 512,000,000 pounds in 1914 and 503,000,000 pounds in 1915.

In the earlier years the United Kingdom took a little over one-third of this country's exports of pork fats and oils, and from 1911 to 1913 received a little less than one-third.

Germany has received quite evenly about 30 per cent during the 18 years, and the Netherlands about 10 per cent, with a tendency to increase in later years.

Cuba has taken 5 to 9 per cent, Belgium 2 to 5 per cent, France not more than 4 per cent, and very small fractions have gone to Canada, Italy, Denmark, and a few other countries.

OTHER COUNTRIES.

[Table 5.]

No other country but the United States has exported pork fats and oils in any appreciable quantity that has been maintained except Australia, whose trade has grown to 2,399,000 pounds in 1911 and 2,000,000 pounds in 1912.

Canada at one time gave promise of developing considerable export trade in pork fats and oils, and by 1903 had an export of 2,400,000 pounds, but in no subsequent year did the quantity reach 1,500,000

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pounds, although it nearly did in 1910, after which year these exports declined to merely 47,000 pounds in 1913.

The exports of these commodities from Russia were as high as over 3,000,000 pounds in 1902, but in subsequent years the decline was as low as 200,000 pounds in 1908; after that year these exports have ranged from 300,000 pounds to 1,000,000 pounds.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

During the last 20 years the total exports of the nine surplus countries under consideration in pork fats and oils were almost exclusively from the United States, the fraction for all other countries combined being at the highest under 2 per cent and usually under 1 per cent.

MEAT AND MEAT PRODUCTS—PORK: OTHER.

TOTAL OF NINE COUNTRIES.

[Table 4.]

Unlike beef in this respect, pork is most in demand when salted, pickled, cured, and otherwise preserved. The nine countries under examination exported 793,000,000 pounds of this miscellaneous class of pork and pork products in 1895, and the quantity grew rapidly to 1,203,000,000 pounds in 1899, but a decline followed which reached 618,000,000 pounds in 1910, from which low-water mark of the 18 years there was a rapid recovery to 823,000,000 pounds in 1912, an amount below the exports of 1896 to 1908.

UNITED STATES.

[Tables 5 and 6.]

The United States has always occupied a leading place as an exporter of this class of pork and pork products. Its record is an export of 616,000,000 pounds in 1895, followed by an increase to 926,000,000 pounds in 1899, from which the descent was to 530,000,000 pounds in 1903, with quick recovery to 710,000,000 pounds in 1906, but after that year there was a decline to 343,000,000 pounds in 1910, with a countermovement to 475,000,000 pounds in 1912, followed by decline to 408,000,000 pounds in 1914, but in 1915 these exports rebounded to 601,000,000 pounds.

About three-quarters of these exports went to the United Kingdom previous to 1910, and after that year to 1913 about 70 per cent.

Other countries, each taking not more than 5 per cent at the most in any year, are Belgium, Canada, Cuba, France, Germany, Italy, the Netherlands, and Norway.

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OTHER COUNTRIES.

[Table 5.]

In this class of exports Denmark's remarkable development of its bacon trade has given it the most prominent place among all countries after the United States. This export trade steadily developed from 134,000,000 pounds in 1895 to 263,000,000 pounds in 1912, with much uniformity. Canada follows behind Denmark largely in the same sort of exports, which increased from 41,000,000 pounds in 1895 to 143,000,000 pounds in 1903, with subsequent descent to 39,000,000 pounds in 1913.

Russia also has considerable trade in this class of pork and pork products, which has grown from 1,300,000 pounds in 1895 to 20,000,000 pounds in 1912.

Australia has done a small business in this class of exports, which has increased from 185,000 pounds in 1895 to over 2,000,000 pounds in 1912.

PERCENTAGE CONTRIBUTED BY EACH EXPORTING COUNTRY.

[Table 7.]

The share of the United States in the total export trade of the 9 countries in pickled, salted, cured, and otherwise preserved pork fell from 74 per cent in the 10 years 1895–1904 to 53 per cent in 1911, but in 1912 the fraction rose to 58 per cent.

Denmark's fraction increased from 15 per cent in the earlier years to 36 per cent in 1911, but declined to 32 per cent in 1912. Canada's fraction has declined throughout from 10 per cent in the earlier years to less than 8 per cent in 1912. Russia's fraction in later years is about 2.5 per cent.

PORK EXPORTS SUMMARY.

The world's pork exports, as well as those of beef and mutton, are highly localized. The small amount of fresh, chilled, and frozen pork is exported mostly from Russia, United States, New Zealand, and Australia, with importance in the order named. Pork fats and oils are exported almost exclusively from the United States. All other pork and pork products, which are pickled, salted, cured, and otherwise preserved, are exported almost entirely from the United States, Denmark, and Canada, with importance in the order named, but with Russia growing into notice.

Unlike beef and mutton, pork is exported only to a small extent in the fresh, chilled, and frozen states. Nearly the entire pork export is in the form of fats and oils, and in meats variously preserved, the latter general class being nearly half as large again in weight as the fats and oils.

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MEAT AND MEAT PRODUCTS—UNIDENTIFIED: TOTAL.

[Tables 4, 5, 6, and 7.]

The export classification of most countries leaves more or less meat unidentified as beef, pork, mutton, etc., partly through indifference, partly because the quantities are too small to be separately mentioned, and partly because the nature of the product is such that it can not be identified by kind of meat. To the last class belong the numerous varieties of sausage.

The total exports of this miscellaneous class of meats and their products have increased enormously during the last 20 years. They began with 69,000,000 pounds in 1895 and on the whole advanced to 287,000,000 pounds in 1912.

The United States has usually sufficiently identified exported meats by kind so that these exports ranged from only 5,000,000 to 10,000,000 pounds from 1901, when the quantity was first separately reported, to 1909, after which year through a change in classification these exports reached 45,000,000 pounds in 1911. The quantity for 1914 was 36,000,000 pounds, and for 1915 it was 39,000,000 pounds.

The principal customer of the United States in this class of exports has been Germany, which took from 28 to 39 per cent of the total exports of this class from 1910 to 1913. The Netherlands is next in order of importance with 21 to 25 per cent during the same period. Other countries that have taken appreciable fractions are Belgium, Canada, Cuba, France, Russia, Spain, and the United Kingdom.

Argentina leads in this class of exports, with a rapid increase from 6,000,000 pounds in 1895 to 93,000,000 pounds in 1912, with a drop to 78,000,000 pounds in 1913. Beef and its products constituted most of these exports.

Similarly in the case of Uruguay, beef and its products were usually the principal if not the entire exports of this class. They increased from 1,000,000 pounds in 1895 to 57,000,000 pounds in 1912.

The 48,000,000 pounds of this class of exports from Australia in 1895 declined to 10,000,000 pounds in 1907, and afterwards increased to 46,000,000 pounds in 1911, with a drop to 40,000,000 pounds in 1912.

Russia has had a considerable trade in this sort of exports during the 18 years under review, ranging from about 1,000,000 pounds in 1899 to 26,000,000 pounds in 1912.

New Zealand stands next in order of importance, with an export of this class of meat and meat products amounting in recent years to about 15,000,000 pounds.

By reason of its export classification, Canada exported 40,000,000 pounds of this unidentified class of meat and meat products in 1905, but the quantity for 1913 was 3,000,000 pounds.

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In recent years about one-third of the exports of this unidentified class of meat and meat products exported from the nine countries under consideration was exported by Argentina; about one-sixth each by Uruguay, the United States, and Australia; and smaller fractions by Russia, New Zealand, and Canada.

MEAT AND MEAT PRODUCTS—UNIDENTIFIED: FRESH, CHILLED, AND FROZEN.

[Tables 4, 5, 6, and 7.]

The exports of fresh, chilled, and frozen meat unidentified by kind from the nine countries increased from 5,000,000 pounds in 1895 to 97,000,000 pounds in 1912.

Undoubtedly most if not all of the exports of the fresh, chilled, and frozen meat from Uruguay have been beef. The quantity was first reported in 1903, when 11,000 pounds were exported. The quantity immensely increased to 45,000,000 pounds in 1912.

Argentina exported 31,000,000 pounds of this unidentified meat in 1913, Russia 11,000,000 pounds, Australia 5,000,000 pounds, and New Zealand 1,000,000 pounds.

MEAT AND MEAT PRODUCTS—UNIDENTIFIED: FATS AND OILS.

[Tables 4, 5, 6, and 7.]

Fats and oils have been so generally identified by kind that only 6,000,000 to 7,000,000 pounds of them have been exported unidentified from the nine countries in very recent years, and these entirely from New Zealand.

MEAT AND MEAT PRODUCTS—UNIDENTIFIED: OTHER.

[Tables 4, 5, 6, and 7.]

The statements made under "Unidentified meat and meat products: Total" apply almost fully to the unidentified exports grouped under "Other," the only modification necessary being for New Zealand on account of fats and oils.

BEEF, MUTTON, PORK, AND FATS AND OILS IN EXPORTS.

EACH AS A PERCENTAGE OF THE TOTAL.

[Table 8.]

If all exports of meat and meat products from the nine countries are added together and are regarded as being represented by 100, the various classes of meat and meat products will be found to change in their ratio to the total during the 18 years under review.

BEEF.—The most significant change is in the displacement of pork by beef in the place of first importance. During the 10 years 1895–1904 beef and beef products were 36 per cent of the entire exports of

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meat and meat products; during the next 5 years the ratio rose to 40 per cent; in 1910, 45.6 per cent; in 1911 it was 45 per cent; and in 1912, 43 per cent.

During this period, the ratio for pork and pork products declined from 50 per cent in 1895–1904 to 30 per cent in 1910, and afterwards increased to 37 per cent in 1912. That is to say, while beef displaced pork for leading place in 1909 and has since held it, pork has tended to regain its former place since 1910.

The declining fraction of beef and its products in the total meat exports from the United States is prominent. From 31 per cent in the 10 years 1895–1904, the fraction has declined to 13.5 per cent in 1914.

In the total exports of meat and meat products from Argentina, beef and its products have risen from 58 per cent in the earlier years under consideration to over 84 per cent in 1913.

In Australia, beef and its products were 63 per cent in the earlier years and declined to 52 per cent by 1910, but afterwards rose to 62 per cent in 1912.

The beef fraction for New Zealand increased from 24 per cent in the earlier years to 31 per cent in 1910, and declined to 23 per cent in 1911.

According to the trade classification for Uruguay, beef has declined from 98 per cent to 67 per cent as the fraction of the total meat trade from the earlier years to 1912, but in the meantime the unidentified meat and meat products increased from 2 to 31 per cent, and these were probably all beef.

MUTTON.—During the first 10 years of the period under review mutton constituted 11.4 per cent of the total exports of meat and meat products from the nine countries under consideration, and the fraction increased to 17.7 per cent in 1910, after which the decline was to 12.7 per cent in 1912. During the 2 years 1911 to 1912 mutton, as well as beef, relatively declined as fractions of the total, while pork took their combined places.

While mutton has more than held its relative place in New Zealand in very recent years, it has not done so in Argentina and Australia. In Argentina, mutton was 38 per cent of the total exports of meat and meat products in the 10 years 1895–1904, but it declined persistently to 9 per cent in 1913. The decline has not been so marked in Australia. The average for the first 10 years was 24.6 per cent, for the next 5 years 40 per cent, and afterwards followed a decline to 27 per cent in 1912.

PORK.—While the fraction of pork in the total meat exports of the nine countries declined from 50 per cent in the earlier years to 30 per cent in 1910, with partial recovery to 37 per cent in 1912, on account

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of changes in the relative importance of beef and in a less degree mutton, the tendency in the principal countries has differed.

In the total meat trade of the United States pork declined from 69 per cent in the 10 years 1895–1904 to 67 per cent in the 5 years 1905–9, but subsequently increased year by year to 83 per cent in 1914.

In the total meat export trade of Canada, pork and pork products during the 18-year period have ranged from 82 per cent to 94 per cent.

Russia's fraction has ranged from 48.5 per cent, the average for 1895–1904, to 59 per cent in 1910.

The fraction for Australia is a little over 1 per cent, and for New Zealand under 1 per cent.

FATS AND OILS.—Fats and oils hold an important and strong place in the exports of the nine surplus countries under consideration, although this place has not been a growing one relatively during the last 20 years. Indeed, it has slightly declined in relative importance, or from 32 per cent during the first 15 years, as an average, to 30 per cent in 1912.

In the United States, fats and oils gained in relative place from 41 per cent during the first 10 years of the period under review to 58 per cent in 1911, since which year the fraction has remained about the same.

Next after the United States, Australia is the country in which fats and oils are of greatest relative importance in the total exports of meat and meat products. The fraction, however, seems to be a declining one, having dropped from 34.5 per cent during the first 10 years to 29 per cent in 1912, although in 1911 the fraction was as high as 35 per cent.

In Argentina, fats and oils were 21 per cent of the total exports of meat and meat products during the first 10 years of the period, but the fraction in 1913 was 13.4 per cent.

In the total exports of meat and meat products from Uruguay, fats and oils have declined from 24 to 22 per cent from the earlier years to 1912.

The fraction for fats and oils has remained nearly uniform at about 16 per cent in New Zealand.

The Canadian percentage for fats and oils has increased from 1 to 4.4 per cent since the earlier years.

It is interesting to notice the changes in relative position between beef and pork fats and oils. During the first 10 years pork fats and oils were 18 per cent of all exports of meat and meat products and beef fats and oils 16 per cent, but by 1909 the exported beef fats and oils exceeded the pork fats and oils by 25,000,000 pounds.

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In 1910 the fraction for pork fats and oils descended to 11 per cent, but afterwards increased to 15.6 per cent in 1912.

The leading place taken by beef fats and oils in 1909 was retained only until 1911, since it gave way to pork fats and oils in 1912. Notwithstanding changes in relative place, the general fact in very recent years is that these two classes are about equal.

As fractions of the total exports of meat and meat products from the United States, pork fats and oils in 1914 were 46.3 per cent, and beef fats and oils 10.5 per cent; beef fats and oils were 28.5 per cent in 1912 in Australia, and pork fats and oils only 0.5 of 1 per cent; in Uruguay the beef fats and oils were 21.6 per cent in 1912, and there were no pork fats and oils; the fraction for beef fats and oils in Argentina in 1913 was 13.4 per cent, with only a trace of a fraction for pork fats and oils; for New Zealand, the fraction for beef fats and oils was 13.6 per cent for 1911, and only a trace for pork fats and oils.

MEAT EXPORTS SUMMARY.

By 1899, the total meat exports of the nine countries under consideration reached a figure that remained nearly constant until 1911, and that year was followed by one with a quantity of exports higher than ever before reached, or 3,861,000,000 pounds.

This great quantity, after deducting about 500,000,000 pounds for mutton, was divided between beef and pork in the ratio of about 52 per cent for beef and 48 per cent for pork. Pork has lost its old-time lead in the export trade, but in very recent years shows a tendency to gain on beef.

The production of beef, mutton, and pork throughout the world, outside of China, is estimated to be about 50,000,000,000 pounds a year, and consequently the export trade of the nine surplus countries, amounting to about 3,861,000,000 pounds in 1912, is only about 7.7 per cent of the entire production; although, of course, it is a much larger fraction of the production of the surplus countries. Meat production and consumption throughout the world being substantially the same, the exports are also about 7.7 per cent of the world's consumption, China being excluded as before.

The United States certainly to and including 1912 was still the leading meat-export nation, as it had been for a great many years, although Argentina had almost overtaken it in 1912. Under the necessities of the European war the meat export strength of the United States was largely renewed in 1915. Not only has Argentina rapidly and enormously increased its meat exports, but the United States has lost since 1899 and to 1914. By far the principal point of weakness in the meat export trade of the United States in recent

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years has been beef, while this has been Argentina's strength. Uruguay has grown rapidly in recent years along Argentine lines.

Argentina and Uruguay together exported 36 per cent of the world's export of meat and meat products in 1912; the United States, 35.1 per cent; Australia and New Zealand combined, 18.7 per cent; and these three great sources of exports of meat and meat products—the two South American neighbors, the two Australasian colonies, and the United States—exported, in 1912, 90 per cent of the world's total.

The comparison changes when the statement is confined to beef and beef products. Nearly three-fifths of the world's export trade in beef and beef products belonged to Argentina in 1912, about one-fifth to the Australasian colonies, and one-seventh to the United States. By 1914, however, the United States had lost its export trade in fresh, chilled, and frozen beef, to be renewed in 1915.

A comparison of principal sources of export supply of pork and pork products presents variations from the foregoing of another sort, for the reason that the South American and Australasian countries are not prominent in this class of exports, and leave three-quarters of it to the United States, about one-fifth to Denmark, and about one-twentieth to Canada.

The mutton export trade is substantially confined to the two Australasian colonies and to Argentina, the former contributing three-quarters and the latter one-quarter.

IMPORTS OF 15 DEFICIENCY COUNTRIES.

For the period beginning with 1895, 15 countries have been selected as the principal ones of the world that consume more meat and meat products than they produce. These are Austria-Hungary, Belgium, Cuba, Denmark, France, Germany, Italy, the Netherlands, Norway, Russia, Spain, Sweden, Switzerland, United Kingdom, and the United States; but the list is to be accepted with the qualification that Denmark is a surplus country in bacon and hams, and that the United States is really a surplus country, all kinds of meat and meat products included, but are included in this list because outside of bacon and hams Denmark is a deficiency country, and because the United States is of interest to the extent that it imports.

The imports of meat and meat products by these 15 countries embrace most of the world's imports of this sort, but the total imports of these countries are much greater than the total exports of the nine surplus countries for the reason that the imports of meat and meat products into the 15 countries include imports from countries that are not surplus countries, some of them figuring at least twice as

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imports. For instance, the United Kingdom imports these commodities and, although it is a country of deficiency, it nevertheless exports great quantities, and so with other countries in less degree. The result is that the imports of meat and meat products into these 15 countries had a total of 4,854,000,000 pounds in 1912, whereas the exports of the nine surplus countries for the same year had a total of 3,861,000,000 pounds. The import total, therefore, is about 25 per cent greater than the export total, and this difference approximately represents both a duplication of import movement of identical or remanufactured commodities, and an exchange of meat and meat products.

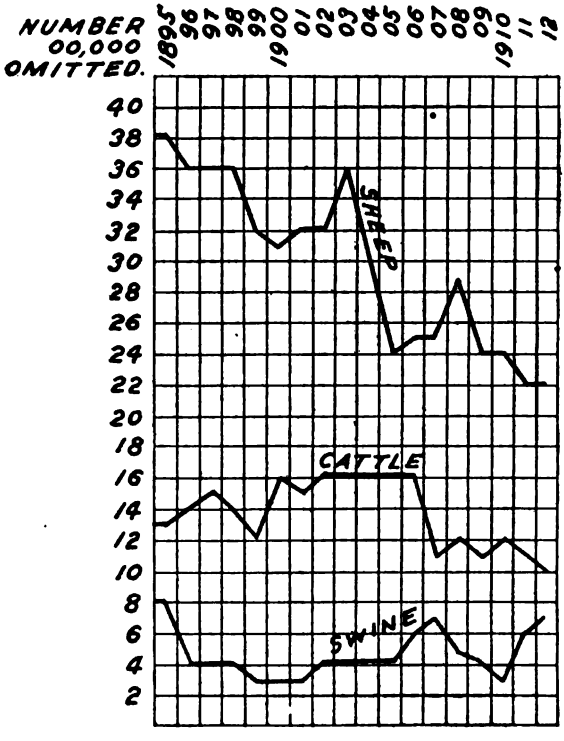

FIG. 15.—Number of live animals imported into 15 principal countries (Table 9).

LIVE ANIMALS.

[Tables 9, 10, 11, and 12.]

The import trade in live animals is small in comparison with the import-trade movement in meat and meat products. Only 1,000,000 cattle were imported by the 15 countries in 1912, or over 600,000 less than the high-water mark of 1903; 2,200,000 sheep were imported in 1912, a nearly continuous decline from 3,800,000 sheep in 1895; and the imported swine numbered over 700,000 animals in 1912, or about double the general course of imports since 1895. Much of this import trade in live meat animals is from national margins across national boundaries to near-by markets.

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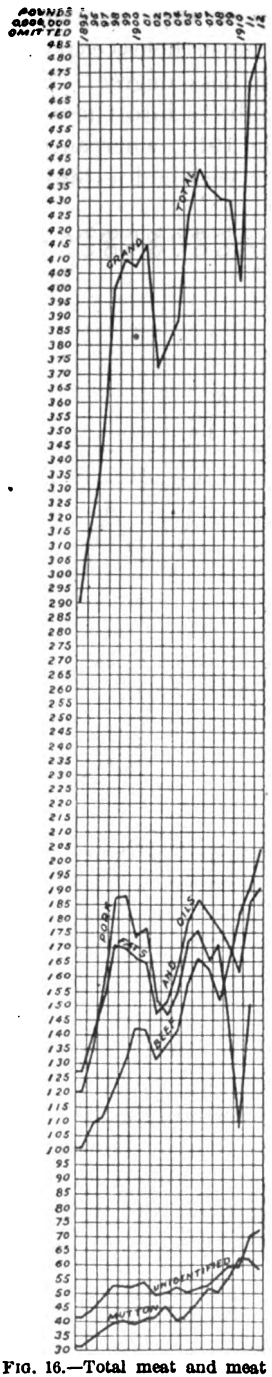

FIG. 16.—Total meat and meat products imported into 15 principal countries (Table 9).

MEAT AND MEAT PRODUCTS—TOTAL BEEF, MUTTON, AND PORK.

TOTAL OF 15 COUNTRIES.

[Table 9.]

From a total of 2,950,000,000 pounds of meat and meat products imported into the 15 countries in 1895, the quantity grew to 4,000,000,000 pounds in 1898, to 4,410,000,000 pounds in 1906, and to 4,854,000,000 pounds in 1912.

UNITED STATES.

[Tables 10 and 11.]

To the end of the fiscal year 1913 the United States imported little meat and meat products. Previous to 1911, the quantity never reached 10,000,000 pounds a year, except in 1903. In 1913, on account of overslaughter of cattle in recent preceding years, the imports of meat and meat products increased to 15,000,000 pounds, a mere bagatelle, however, in comparison with production. These imports were mostly beef fats and oils and unidentified meat and meat products from various countries.

In 1914, imports of these commodities began in large quantities. In that year, 205,000,000 pounds of meat and meat products were imported into the United States, at the average rate of over 17,000,000 pounds a month. In 1915, the imports were over 226,000,000 pounds. Argentina sent most of these imports, but considerable quantities came from Canada, Uruguay, and New Zealand.

OTHER COUNTRIES.

[Tables 10 and 11.]

Austria-Hungary has an erratic record of imports of meat and meat products during the last 20 years, derived more from the United States than from any other country, rising as high as 78,000,000 pounds in 1898 and descending as low as 2,000,000 pounds in 1909.

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On the whole, the quantity of imports has much decreased in recent years.

Belgium's imports declined from 145,000,000 pounds in 1895 to 113,000,000 pounds in 1904, but the subsequent increase was to 188,000,000 pounds in 1911, which was high-water mark, followed by 177,000,000 pounds in 1912. The United States, the United Kingdom, and the Netherlands have been the principal sources of supply.

Cuba's imports of meat and meat products, mostly from the United States, have grown steadily from 92,000,000 pounds in 1900 to 133,000,000 pounds in 1912.

Denmark has succeeded in reducing its meat imports very decidedly since 1907, the year when the largest amount ever imported, 134,000,000 pounds, was received. The subsequent decline is to 33,000,000 pounds in 1912.

France for many years has endeavored to make its people independent in meat supply. Consequently, during the 18 years under review, the imports for one year have not exceeded 151,000,000 pounds in 1896 and have descended as low as 50,000,000 pounds in 1910. The imports for 1912 were 120,000,000 pounds. The chief source of supply has been the United States, with Belgium much below.

Germany likewise has endeavored to establish its independence in meat supply, but this endeavor has admitted large quantities of fats and oils. The largest amount of meat and meat products ever imported into Germany, except 1898 by a small difference, was 591,000,000 pounds in 1912, and two-thirds of this amount was fats and oils. The general trend of imports of meat and meat products into Germany since 1898 was downward until 1910, when only 389,000,000 pounds were imported. The United States has been the principal source of supply, supplemented by Argentina, Denmark, Russia, and the United Kingdom.

Outside of fats and oils, Italy has imported only small quantities of meat and meat products. The total quantity increased from 39,000,000 pounds in 1895 to 109,000,000 pounds in 1912. usually mostly fats and oils and derived from the United States.

The Netherlands has been preeminently the importer of fats and oils, and these in enormous quantities shipped mostly from the United States and the United Kingdom, so that the total of meat and meat products imported into this country was as large as 189,000,000 pounds as long ago as 1895, and the quantity increased to 369,000,000 pounds in 1912, or more than ever before.

Norway has a declining record of imports since 64,000,000 pounds of meat and meat products were imported in 1899, ending with

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40,000,000 pounds in 1912. The sources have been mostly the United States and in less degree the United Kingdom and Denmark.

It may be surprising to find that Russia is an importer of meat and meat products much more than it is an exporter. In 1912 this country exported 55,000,000 pounds of meat and meat products and in the same year imported 136,000,000 pounds, largely, however, fats and oils. The imports came mostly from the United Kingdom, Germany, and China.

Spain has been a steady importer of meat and meat products, with a decline from 48,000,000 pounds in 1899 to 36,000,000 pounds in 1912, mostly fats and oils. The chief sources were Argentina, Uruguay, France, and the United Kingdom.

Sweden is another country that has imported a large fraction of fats and oils, obtained mostly from Denmark. The quantity of imports of meat and meat products, however, has been small, and had declined to 23,000,000 pounds in 1911.

The fraction of fats and oils in the imports of meat and meat products into Switzerland is small when other countries are compared. Presumably on account of the increasing tourists' demands, the imports of this country in meat and meat products have increased from 25,000,000 pounds in 1895 to 65,000,000 pounds in 1912, derived mostly from France and the United States.

By far the largest importer of meat and meat products in the world is the United Kingdom, but partly for reexport. The quantity has much increased during 20 years, or from 1,903,000,000 pounds in 1895 to 2,985,000,000 pounds in 1912, an increase of about 50 per cent in 18 years. Much of these imports consists of fats and oils, but by far the largest fraction is composed of meats and products that are not fats and oils. The whole world contributes meat and meat products to this country, on account of the enormous amount of the trade. Two-fifths of the meat consumption of the United Kingdom is imported, and besides this there are reexports. Argentina has become the chief source of supply, followed in order by Australia, the United States, New Zealand, and Canada.

PERCENTAGE CONTRIBUTED BY EACH IMPORTING COUNTRY.

[Table 12.]

In the importing trade of the 15 countries under review the leading place is occupied by the United Kingdom, which receives over three-fifths of the total meat and meat products. Germany stands second with over one-tenth, and the Netherlands third with over 7 per cent. Minor countries, but not among the least, are Belgium, Cuba, France, Italy, and Russia.

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MEAT AND MEAT PRODUCTS—TOTAL FATS AND OILS.

[Tables 9, 10, 11, and 12.]

Commerce in animal fats and oils is persistent in almost every country. The total imports of these fats and oils of the 15 countries were 1,278,000,000 pounds in 1895, and the number climbed gradually to 1,900,000,000 pounds in 1912.

One-third of the imports of fats and oils was received by the United Kingdom, about one-fifth by Germany, nearly as much by the Netherlands, 8 per cent by Belgium, over 5 per cent by Russia, and appreciable fractions by Cuba, France, and Italy.

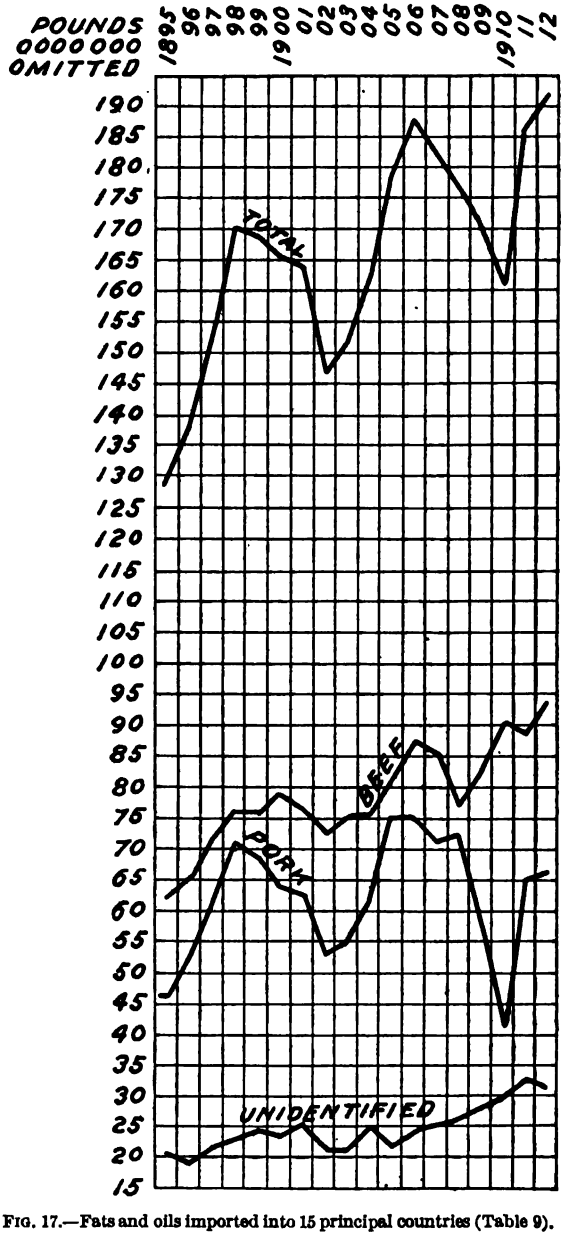

FIG. 17.—Fats and oils imported into 15 principal countries (Table 9).

MEAT AND MEAT PRODUCTS—BEEF: TOTAL.

TOTAL OF 15 COUNTRIES.

[Table 9.]

The imports of beef and beef products into these 15 countries doubled from 1,000,000,000 pounds in 1895 to 2,000,000,000 pounds in 1912.

UNITED STATES.

[Tables 10 and 11.]

After 1913 fresh, chilled, and frozen beef began to enter the United States in considerable quantities, and, during 1914, 185,000,000 pounds of beef and beef products were received, mostly from Argentina, but considerably from Uruguay, Australia, and Canada, and a comparatively small quantity from New Zealand.

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OTHER COUNTRIES.

[Tables 10 and 11.]

The little beef and beef products that have found their way into Austria-Hungary have come from the United States, Servia, and Germany.

Belgium's 7,000,000 pounds of beef and beef products received annually for many years have been sent by the Netherlands, the United States, and France.

Cuba has been a steady customer in the beef and beef products market to the extent of about 45,000,000 pounds annually in recent years, and the supply has come mostly from Uruguay and Argentina, with a small contribution by the United States.

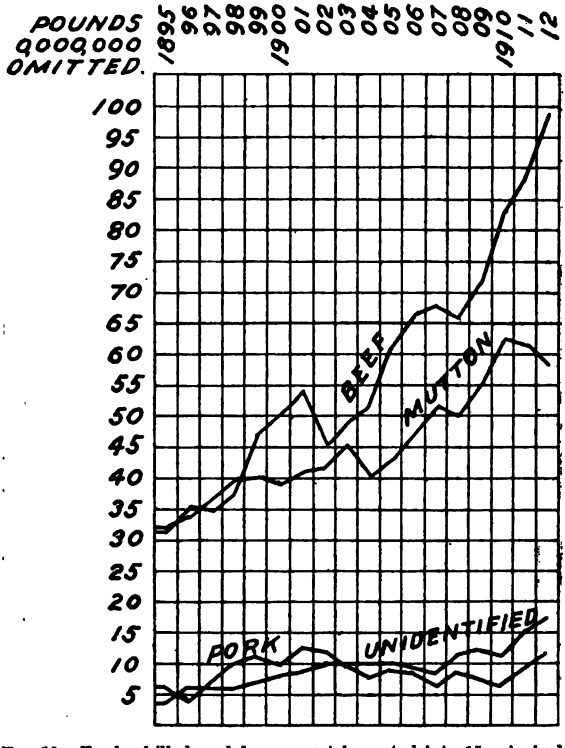

FIG. 18.—Fresh, chilled, and frozen meat imported into 15 principal countries (Table 9).

Denmark's imports of beef and beef products have declined from 53,000,000 pounds in 1907 to 18,000,000 pounds in 1912, and the United States has been the chief source.

France has kept its import meat bill down to small proportions, and during no year since 1895 has the quantity of imported beef and beef products exceeded about 62,000,000 pounds, while it has fallen as low as 19,000,000 pounds. Argentina, Belgium, and the United Kingdom have chiefly provided the supply.

Germany has bought more liberally and has gradually increased the annual imports from 115,000,000 pounds in 1895 to 229,000,000 pounds in 1912, the imports being derived mainly from Argentina, the United States, and the United Kingdom.

The Italian record discloses little beef and beef products; most of the imports are probably included in the "Unidentified" class.

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On account of beef fats and oils, the total beef and beef products imported into the Netherlands have grown enormously, from 138,000,000 pounds in 1895 to 250,000,000 pounds in 1912. The supply has been mostly derived from the United States and the United Kingdom, with supplementary supplies from Germany, Belgium, and Argentina.

Norway's 20,000,000 pounds of imported beef and beef products have been shipped mainly from the United States, but to a considerable extent also from the United Kingdom, Germany, and Denmark.

Russia's imports of beef and beef products, from 2,000,000 to 4,000,000 pounds in very recent years, have been received mostly from Germany.

Spain receives about 1,000,000 pounds of beef and beef products annually from Argentina and Uruguay.

Sweden's imports of beef and beef products have declined in recent years to about 12,000,000 pounds, bought mostly in the United States and Denmark.

Switzerland has been receiving a scant 10,000,000 pounds of beef and beef products in later years, derived from the United States, Argentina, and neighboring European countries.

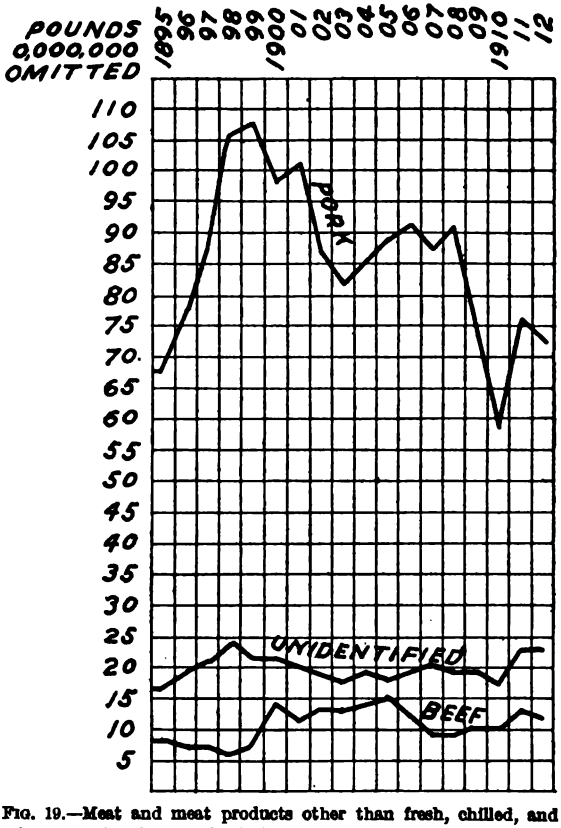

FIG. 19.—Meat and meat products other than fresh, chilled, and frozen meat and fats and oils imported into 15 principal countries (Table 9).

The great market for beef and beef products provided by the United Kingdom took 683,000,000 pounds in 1895 and increased the amount to 1,400,000,000 pounds in 1912. The chief providers are Argentina, Australia, and New Zealand. During the 10 years 1895–1904 the United States contributed 46.5 per cent to the United Kingdom's imports of beef and beef products, but the fraction declined to 2 per cent in 1912.

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PERCENTAGE CONTRIBUTED BY EACH IMPORTING COUNTRY.

[Table 12.]

The relative standing of the 15 importing countries in the total of their import trade in beef and beef products is headed by the United Kingdom, which took from 69 to 71 per cent of the total from 1910 to 1912, and 64 to 66 per cent during the preceding 15 years. The Netherlands is second in order with over 12 per cent during the last 20 years, while Germany, with 10 per cent, occupies third place. Cuba is fourth, and Denmark fifth, while the remaining countries have relatively too small a place to be mentioned.

MEAT AND MEAT PRODUCTS—BEEF: FRESH, CHILLED, AND FROZEN.

TOTAL OF 15 COUNTRIES.

[Table 9.]

This is the class of beef in exporting which the United States has substantially gone out of business, except the war demand in 1914 and 1915, and in importing which this country has joined the ranks of importing nations. Since 1895 the imports of this beef into all countries have increased in greater degree than those of any other class of meat. From 1895 to 1912 the imports of fresh, chilled, and frozen beef into the 15 importing countries increased about 200 per cent; beef fats and oils during the same time increased about 50 per cent, as also did "Other" beef and beef products. During the same period mutton increased less than 100 per cent, and also fresh, chilled, and frozen pork; pork fats and oils only 40 per cent; while "Other" pork and pork products increased only 7 per cent.

From imports of this class of beef, amounting to 319,000,000 pounds in 1895, the trade increased to 989,000,000 pounds in 1912, with a regular increase during the intermediate years.

UNITED STATES.

[Tables 10 and 11.]

Not until 1914 was fresh, chilled, and frozen beef imported into this country. During that year 180,000,000 pounds were received at the average rate of about 15,000,000 pounds per month, although the largest monthly amount was 39,000,000 pounds in June and the smallest 8,000,000 pounds in February. In 1915, the imports were 184,000,000 pounds.

Argentina sent most of this beef, Uruguay, Australia, and Canada large quantities, and New Zealand and Mexico small quantities.

OTHER COUNTRIES.

[Tables 10 and 11.]

Comparatively few countries import fresh, chilled, and frozen beef in considerable quantities. Since 1895 Germany has in no year imported more than 79,000,000 pounds, the receipts for 1912, and

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the quantity has been as low as 10,000,000 pounds in 1897. These imports were chiefly from Denmark and the Netherlands.

Switzerland has taken about 3,000,000 to nearly 6,000,000 pounds yearly in recent years. Most of this beef came from France and the Netherlands, with Denmark as a supplementary source of supply.

The United Kingdom, of course, imports the bulk of this meat, the quantity received having increased from 245,000,000 pounds in 1895 to 897,000,000 pounds in 1912, with nearly uniform increase between. More than four-fifths of the British supply of this class of meat is derived from Argentina, about one-tenth from Australia, and a smaller fraction from New Zealand and Uruguay.

PERCENTAGE CONTRIBUTED BY EACH IMPORTING COUNTRY.

[Table 12.]

The relative standing of each of the 15 importing countries in the receipts of fresh, chilled, and frozen beef is almost totally obscured by the predominance of the United Kingdom, and yet that country is relatively losing. From 1895 to 1904 that country received on the average 91.5 per cent of this class of beef shipped into the 15 importing countries. During the next five years the percentage became 94.2 and in 1910 had increased to 95.2, but in 1911 it declined to 93.4 and in 1912 to 90.7.

Germany's imports were about 8 per cent of the total in 1912, or about the average of the earlier years of the period under review.

In 1915 the United States imported 2⅓ times as much beef of this sort as Germany did in 1912 and nearly one-fifth as much as the United Kingdom did in that year.

MEAT AND MEAT PRODUCTS—BEEF: FATS AND OILS.

[Tables 9, 10, 11, and 12.]

From a total of 622,000,000 pounds in 1895 the 15 importing countries increased their imports of beef fats and oils to 936,000,000 pounds in 1912, with regular increase in the meantime.

Nearly one-half of the beef fats and oils received by the 15 importing countries come to the United Kingdom, over one-quarter to the Netherlands, and about one-seventh to Germany. France receives about 4 per cent, Norway about 2 per cent, and other countries smaller fractions.

MEAT AND MEAT PRODUCTS—BEEF: OTHER.

[Tables 9, 10, 11, and 12.]

The beef embraced in this class is salted, pickled, dried, and otherwise preserved. Its imports into the 15 importing countries increased from 78,000,000 pounds in 1895 to 152,000,000 pounds in 1905, after which they fluctuated considerably until the imports became 120,000,000 pounds in 1912.

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Very few countries receive this class of beef in appreciable quantities. The United Kingdom took three-fifths of the imports of the 15 importing countries in 1912, Cuba took over one-third, and Germany, next in order, about 4 per cent.

MEAT AND MEAT PRODUCTS—MUTTON.

TOTAL OF 15 COUNTRIES.

[Table 9.]

This is a trade that is centralized in origin in Argentina, Australia, and New Zealand, and is almost entirely confined in destination to the United Kingdom. The imports are almost exclusively in the form of frozen mutton. They increased regularly from 320,000,000 pounds in 1895 to 585,000,000 pounds in 1912.

UNITED STATES.

[Tables 10, 11, and 12.]

In 1914 the United States imported a comparatively small quantity of mutton, amounting to 13,000,000 pounds, half of which was received from Argentina, and about one-third from Australia and New Zealand. Uruguay contributed more than New Zealand, and Canada contributed a small amount. The imports in 1915 were 16,000,000 pounds.

OTHER COUNTRIES.

[Tables 10, 11, and 12.]

The imports of mutton into the United Kingdom increased from 315,000,000 pounds in 1895 to 622,000,000 pounds in 1910, after which the decline was to 576,000,000 pounds in 1912. This mutton was received, in 1912, 42.5 per cent from New Zealand, 31 per cent from Argentina, and 20 per cent from Australia.

Denmark receives over 5,000,000 pounds of mutton yearly, mostly from Iceland, but to some extent from Germany.

Of the total mutton imports into the 15 importing countries, the United Kingdom received nearly 99 per cent in 1912 and Denmark nearly 1 per cent.

MEAT AND MEAT PRODUCTS—PORK: TOTAL.

TOTAL OF 15 COUNTRIES.

[Table 9.]

The imports of pork and pork products into the 15 importing countries are about three-quarters of the imports of beef and beef products; the amount increased from 1,200,000,000 pounds in 1895 to 1,500,000,000 pounds in 1912, but the quantity fluctuated enormously in the meanwhile, going as high as 1,879,000,000 in 1899, and as low as 1,068,000,000 in 1910. Since 1908 these imports have declined, but there is some tendency toward recovery.

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UNITED STATES.

[Tables 10, 11, and 12.]

This country never imported enough pork and pork products to make a record until after 1913. In 1914 these imports were 7,000,000 pounds and in 1915, 24,000,000 pounds, derived almost entirely from Canada.

OTHER COUNTRIES.

[Tables 10, 11, and 12.]

About three-fifths of the total imports of the 15 countries of pork and pork products was received by the United Kingdom in 1912. The quantity imported into that country increased from 857,000,000 pounds in 1895 to 1,232,000,000 pounds in 1899, and afterwards declined to 755,000,000 pounds in 1910, followed by increase to 879,000,000 pounds in 1912. More than one-half of these imports in recent years was received from the United States and about three-quarters in the earlier years under review. A large fraction of imports is received from Denmark and a smaller one from Canada.

Germany's imports of pork and pork products have risen from 173,000,000 pounds in 1895 to 385,000,000 pounds in 1898, after which with fluctuations the quantity decreased to 148,000,000 pounds in 1910, followed by increase to 281,000,000 pounds in 1912. The almost exclusive sources of supply were the United States, Denmark, and Russia.

The United Kingdom in 1912 imported 59 per cent of the total imports of the 15 countries of pork and pork products, Germany 18.8 per cent, the Netherlands 6.9 per cent, mostly from the United States, and Cuba 5.6 per cent, almost exclusively from the United States.

MEAT AND MEAT PRODUCTS—PORK: FRESH, CHILLED, AND FROZEN.

[Tables 9, 10, 11, and 12.

Compared with other classes of meat imports, the imports of fresh, chilled, and frozen pork into the 15 importing countries under examination are small. They increased from 55,000,000 pounds in 1895 to 129,000,000 pounds in 1901, and thereafter declined to 67,000,000 pounds in 1910, followed by increase to 106,000,000 pounds in 1912.

In 1914 the imports of this class of pork into the United States were over 5,000,000 pounds, and in 1915, 16,000,000 pounds, almost entirely derived from Canada.

The United Kingdom leads Germany a little in this class of imports and receives about one-third of the total receipts of the 15 importing countries. The United Kingdom's chief source of supply is the Netherlands, with a small supplementary supply from the United States.

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Germany received 27.5 per cent of the total imports of fresh, chilled, and frozen pork of the 15 importing countries in 1912, substantially all from the Netherlands, Russia, and Denmark.

Switzerland also is a relatively large importer of this class of pork, and received 21 per cent of the total of the 15 countries in 1912, mostly from Denmark, Sweden, and the Netherlands.

France's receipts of this class of pork were 8 per cent of the total of the 15 importing countries in 1912, the Netherlands and Belgium being the chief sources of supply.

A little below France, Austria-Hungary imported 6.6 per cent of the total of the 15 importing countries in 1912, almost exclusively from Servia.

MEAT AND MEAT PRODUCTS—PORK: FATS AND OILS.

[Tables 9, 10, 11, and 12.]

Lard is a most persistent article of international commerce and forces its way regardless of general protective and prohibitive national policies concerning imports. The pork fats and oils imported by the 15 importing countries amounted to 460,000,000 pounds in 1895, and advanced to 755,000,000 pounds by 1906, but the quantity declined to 413,000,000 pounds in 1910, followed by increase to 659,000,000 pounds in 1912.

Germany is above the United Kingdom as an importer of pork fats and oils, and in 1912 received 35.6 per cent of the total receipts of the 15 importing countries, almost entirely from the United States.

The United Kingdom's receipts were 30.6 per cent of the total and again the United States is the chief source of supply. Third in order is the Netherlands with 14 per cent of the total, and the United States the chief source; while fourth in order is Cuba, with 9.4 per cent of the total, and the United States almost exclusively the source.

MEAT AND MEAT PRODUCTS—PORK: OTHER.

[Tables 9, 10, 11, and 12.]

In this class of pork are included salted, pickled, and otherwise preserved pork, and a considerable fraction of sausages. The imports of the 15 countries increased from 683,000,000 pounds in 1895 to 1,077,000,00 pounds in 1899, and then followed a decline on the whole to 588,000,000 pounds in 1910, succeeded by increase to 2,734,000,000 pounds in 1912. On the whole, therefore, this trade in recent years is somewhat below what it has been throughout all the previous portion of the 18 years under review.

Although the United States is the greatest exporter of pork and pork products in the world, yet since 1913 it has imported a considerable amount. In 1914 the imports of this class of "Other" pork

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amounted to 2,000,000 pounds, and in 1915, 8,000,000 pounds, almost entirely from Canada and yet with small quantities from many other countries.

The bulk of the world's imports of this class of pork and pork products, however, is received by the United Kingdom, the fraction for 1912 being over 88 per cent, and the principal sources of supply almost equally the United States and Denmark, with a strong supplementary supply from Canada.

Cuba and France each received about 3 per cent of the total imports of this class of pork and pork products in 1912, the French sources of supply being the United Kingdom, the United States, Germany, and Belgium, and the Cuban source almost entirely the United States.

Germany received 2.5 per cent of the total of the 15 countries in 1912, chiefly from Denmark, secondly from the United States, and third in order from Austria-Hungary.

MEAT AND MEAT PRODUCTS—UNIDENTIFIED: TOTAL.

[Tables 9, 10, 11, and 12.]

Through failure to identify meat and meat products as belonging to beef, pork, mutton, or other kind, the 15 importing countries had a total of unidentified imports in 1912 amounting to 726,000,000 pounds, and this had increased from 413,000,000 pounds in 1895.

Over one-fifth of these imports in 1912 was received by Belgium, chiefly from the United Kingdom and the United States, with supplementary supplies from Argentina, France, and the Netherlands.

By Russia, 19 per cent of these imports was received, about one-half from the United Kingdom, and the remainder chiefly from China and Germany.

Third in order of importance is the United Kingdom, which received 18 per cent of the total in 1912, chiefly from Argentina, but considerably from the United States and Australia.

Italy's fraction of the total is over 13 per cent, and the imports are derived mostly from Argentina and the United States.

Over 11 per cent of the total was received by Germany in 1912, the chief countries of supply being primarily the United States, and secondarily Argentina.

Nearly 5 per cent of the total imports of this unidentified meat was received by Spain from Uruguay, France, United Kingdom, Argentina, and the United States in order of importance.

France received 4 per cent of the total in 1912, mostly from the United Kindom, and in much less degree from Belgium and the United States.

Switzerland obtained about 4 per cent of the total in 1912, chiefly from the United States, Italy, and Germany.

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MEAT AND MEAT PRODUCTS—UNIDENTIFIED: FRESH CHILLED, AND FROZEN.

[Tables 9, 10, 11, and 12.]

By 1912 the imports of unidentified fresh, chilled, and frozen meat had increased to 182,000,000 pounds from 44,000,000 pounds in 1895. Over one-half of the receipts of the 15 countries in 1912 came to the United Kingdom, and more than one-half of this was brought from Argentina, more than one-fifth from the Netherlands, and about one-tenth from the United States.

Italy's receipts of this class of unidentified meat and meat products amounted to 17.6 per cent in 1912, brought almost entirely from Argentina.

Russia's fraction in 1912 was 16.7 per cent, and China was almost exclusively the country of supply, with a small supplementary supply from Finland.

The share of Switzerland in the total imports of the 15 countries of unidentified fresh, chilled, and frozen meat was about 10 per cent in 1912, and the supplying countries were Argentina, France, Sweden, Denmark, the Netherlands, and Australia, in order of importance.

MEAT AND MEAT PRODUCTS—UNIDENTIFIED: FATS AND OILS.

[Tables 9, 10, 11, and 12.]

The fats and oils of unidentified meat received in the import trade of the 15 countries grew from 197,000,000 pounds in 1895 to 316,000,000 pounds in 1910.

About three-eighths of these imports was received by Belgium, chiefly from the United Kingdom, but in considerable fractions from Japan, the United States, France, Argentina, and the Netherlands.

Russia received nearly one-third of the total imports of the 15 importing countries of these fats and oils, chiefly from the United Kingdom, but considerably from Germany and China.

Nearly one-fifth of the total came to Italy in 1912, the United States being the leading country of supply, followed in order by the United Kingdom, Argentina, and France.

Next in order of importance is Spain, which received nearly 10 per cent of the total imports of the 15 importing countries of these fats and oils, Uruguay and France being the chief contributors, followed in order of importance by the United Kingdom and Argentina.

MEAT AND MEAT PRODUCTS—UNIDENTIFIED: OTHER.

[Tables 9, 10, 11, and 12.]

From 1895 to 1912 this class of imports of unidentified meat and meat products increased from 172,000,000 to 228,000,000 pounds, and more than one-third was received by Germany in 1912, the

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principal supplying countries being the United States, Denmark, the United Kingdom, Argentina, and Russia, in order of importance.

The United Kingdom received one-sixth of the total in 1912, nearly one-half of which came from the United States and over one-fifth from Denmark.

Belgium's receipts in 1912 were 13.5 per cent of the total of the 15 importing countries, more than one-half of which came from the United States, and prominently from the Netherlands, the United Kingdom, and Argentina.

Next in order of importance is the Netherlands, which received in 1912 6.6 per cent of the total of the 15 countries importing this class of unidentified meat and meat products, derived mainly from the United States and the United Kingdom, but considerably also from Germany.

BEEF, MUTTON, PORK, AND FATS AND OILS IN IMPORTS, EACH AS A PERCENTAGE OF THE TOTAL.

[Table 13.]

In the grand total import trade in meat and meat products of the 15 importing countries under consideration it is interesting to observe the relative growing or diminishing importance of the different classes of meat and meat products.

As between the total of fats and oils and the total of meat and meat products excluding fats and oils, the fats and oils have relatively declined in the import trade from 41 per cent in the 10 years 1895–1904 to 39 per cent in 1912, while, of course, the complementary beef, mutton, and pork correspondingly increased.

Beef and beef products have gained on the other kinds of meat and meat products since the 10 years 1895–1904. During that period they were 34 per cent of the total imports of meat and meat products, and the fraction increased to 42 per cent in 1912. During the same 18 years mutton imports relatively increased from 10.4 to 12 per cent, and unidentified meat and meat products increased from 13 to 15 per cent; therefore, necessarily, pork and pork products decreased relatively from 42.5 per cent of the total to 31 per cent.

Mutton, however, has declined relatively since 1910, and so have beef and beef products; while, on the contrary, pork and pork products have relatively gained.

The foregoing comparisons express the general significance of similar computations that have been made for each one of the 15 importing countries, but there have been variations from the general fact owing to national conditions.

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MEAT IMPORTS SUMMARY.

It has been observed that the meat import trade of deficiency countries is much more widely distributed in origin than it would be if it were derived from the surplus countries, but it happens that meat produced within a deficiency country is exported because of contiguity to other countries, because of special quality or excellence of preparation, or for other reasons. A country like Switzerland, for instance, has many sources of supply, most of which are meat deficiency countries.

The meat import trade being of such wide extent of origin, its total is necessarily much larger than the total exports of the meat surplus countries. The meat interests of a deficiency country often relate to other deficiency countries, as well as to the few surplus countries. Of course, what an exporting deficiency country loses in exported meat it must balance by imports directly or indirectly from the surplus countries, the consumption having been determined.

The continental countries of Europe have adopted more or less severe restrictive policies concerning importations of meat and meat products. The United Kingdom has no such restrictive policy, and, producing not more than 60 per cent of the meat which it consumes, has long been by far the leading importer of meat and meat products among the nations of the earth.

Germany holds second place, in spite of a restrictive policy against imports, yet Germany's imports are principally of fats and oils; also, on account of large importations of fats and oils, the Netherlands holds third place.

Since 1913 the United States has become the fourth importer of meat and meat products among the nations, but these imports are mostly chilled and frozen beef from South America and Australasia.

PRODUCTION OF MEAT.

RELATIONSHIP TO THE FOOD OF THE WORLD.

It seems not to be generally known that meat and meat products are far from being a leading class of foods of all the peoples of the earth. The meat production of the world is probably 60,000,000,000 pounds or more, including the extra-edible parts of the animal with the dressed weight. The equivalent of this quantity in calories is 62,400,000,000,000.

As large as this number is, it is only 7 per cent of the number of calories in the world's rice crop, and rice is nearly all used for human food. The 900,000,000,000,000 calories in this crop easily place it above every other crop as an element of the human dietary. Wheat ranks next with 382,000,000,000,000 calories, and this crop is nearly all used for human food. Next after wheat comes sugar, with

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209,000,000,000,000 calories, and next in order are rye (partly distilled), with 164,000,000,000,000 calories; barley (partly brewed and distilled and partly eaten by live stock), with 119,000,000,000,000 calories; and potatoes, with 98,600,000,000,000 calories. A portion of the potato crop is not consumed as human food, but, with some indefinite allowance for this, potatoes appear to have a much larger importance as food than meat does, to the extent that this importance is indicated by calories.

The important fact with regard to meat is that its production and consumption are much less evenly distributed among the peoples of the earth than the production and consumption of cereals. The people of a few countries eat the bulk of the meat, and the bulk of the meat is produced in a few countries, some of which are prominent producers, and one of which is the principal producer. This last country is the United States, which by far leads all other countries in the production as well as the consumption of meat and meat products.

UNITED STATES.

[Table 14.]

An estimate of the quantity of meat produced in the United States in 1900 was made in 1907; these results were published in Bulletin 55 of the Bureau of Crop Estimates. The details of the process need not be mentioned and examined here, and it should be sufficient to say, unless a study of that investigation is undertaken, that the factors employed were derived partly from the census of live stock in 1900, and partly from many reports received from slaughtering and packing houses, live stock commission men, large breeders and feeders, range men, and other persons who, it was known, had special information concerning the subject. Important aid was given by a large packing house at Chicago, and, as one of their services, may be mentioned the special weighing of many thousands of tongues, kidneys, sweetbreads, ox slips, etc., to ascertain the average weight of a single one or pair. It was possible, therefore, to estimate the quantity of the edible parts of the animal that are not included in dressed weight, and to do this with a high degree of accuracy.

The meat production of 1909 was ascertained by the census of 1910. For 1909 the census ascertained the meat production of the wholesale slaughtering and packing establishments, as it had done for 1904 and 1899, but obviously these establishments slaughtered only a portion of the total number of animals slaughtered for food. To secure this total, as required by a special amendment to the act providing for the Thirteenth Census, the enumerators obtained reports from retail slaughterhouses, and to these figures were added the statistics of the number of animals slaughtered on farms and ranges secured through the census of agriculture.

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The bulk of the slaughtering in 1909 was done by wholesale establishments, almost two-thirds of the animals being killed in such plants. The larger number of cows, however, were slaughtered by retail establishments. It is notable that a larger number of hogs than of other animals were slaughtered on farms and ranges, and the fraction was 29 per cent.

The census did not ascertain the weight of the extra-edible parts, but, the number of animals slaughtered being known, it is proper to multiply them by the weights ascertained in the investigation reported in Bulletin 55 of the Bureau of Crop Estimates.

TOTAL BEEF, MUTTON, AND PORK.

It was estimated that the meat produced in the United States in 1900 reached the grand total of 16,226,000,000 pounds, embracing beef, veal, mutton, lamb, and pork, including lard, but not including extra-edible parts. For 1909 the census figures make a total of 16,940,000,000 pounds, to which may be added 11,708,000 pounds of goat meat, some of which was perhaps eaten as mutton and lamb.

The weight of the extra-edible parts in the meat production of 1900 was 2,640,000,000 pounds, or about one-sixth of the dressed weight. In 1909 these parts weighed 2,771,000,000 pounds, not including goats.

If these two classes of meat are added together, the grand total meat production from cattle, sheep, and swine in 1900 was 18,865,000,000 pounds, and in 1909 it was 19,712,000,000 pounds.

These quantities of meat were obtained from 83,270,000 slaughtered animals in 1900, and 88,071,665 slaughtered animals in 1909, goats not included.

BEEF AND VEAL.

The beef and veal produced in 1900 had a dressed weight of 7,610,000,000 pounds, and a supplementary weight of 1,353,000,000 pounds was contributed by the extra-edible parts, so that the total beef and veal production for that year equaled 8,963,000,000 pounds.

The production of beef and veal in 1909 was considerably greater than it was nine years before, although less per capita of the population. The total of 9,545,000,000 pounds was composed of 8,138,000,000 pounds of dressed weight, and 1,407,000,000 pounds of extra-edible parts.

BEEF, EXCLUDING VEAL.

It was estimated that 12,978,000 cattle, excluding calves, were slaughtered for meat in 1900, and that they produced 6,852,000,000 pounds of dressed weight, and 1,297,000,000 pounds of extra-edible parts, or a total of 8,148,000,000 pounds of beef, excluding veal.

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In 1909 the cattle, excluding calves, slaughtered for meat numbered 13,611,422, and the total beef production of 8,798,000,000 pounds was composed of 7,454,000,000 pounds of dressed weight, and 1,344,000,000 pounds of extra-edible parts.

VEAL.

The veal calves of 1900 were nearly half as many as the adult cattle that were slaughtered for beef, or 5,831,000, from which the veal production in dressed weight was 758,000,000 pounds, and the extra-edible parts 57,000,000 pounds, or a total of 815,000,000 pounds.

The 747,000,000 pounds of veal produced in 1909 were derived from 6,515,976 calves; the dressed weight was 684,000,000 pounds, and the extra-edible parts weighed 63,000,000 pounds.

It will be remembered that there was complaint of overslaughter of calves in this country a few years ago, the causes being either high-priced feed, or scarcity of feed for developing beef. This overslaughter of calves began as far back as 1909, in which year the veal calves were 32.4 per cent of the entire slaughter of cattle and calves as against 31 per cent in 1900.

MUTTON, INCLUDING LAMB.

The estimated slaughter of sheep, including lambs, in 1900, aggregated 14,316,000. The estimated mutton production was 587,000,000 pounds dressed weight, and over 29,000,000 pounds of extra-edible parts, or a total of 616,000,000 pounds.

The slaughter of 1909 included hardly more sheep and lambs than that of 1900, and the mutton (including lamb) production was only slightly greater than in the former year.

PORK.

This country slaughters over 50,000,000 hogs annually. That was approximately the slaughter of 1900, and the number increased by 3,000,000 in 1909.

The pork production of 1900 including lard and extra-edible parts was 9,286,000,000 pounds, composed of 8,029,000,000 pounds of dressed weight, and 1,257,000,000 pounds of extra-edible parts.

In 1909, the dressed weight including lard was 8,199,000,000 pounds, the extra-edible parts 1,334,000,000 pounds, and the total was 9,532,000,000 pounds.

OTHER MEAT.

Although this investigation is confined to beef, mutton, and pork, a few words are taken to state the production of other kinds of meat. This is almost entirely goat meat, 12,295,000 pounds of which were produced in 1909, from 285,553 goats.

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A few horses have been slaughtered in this country for the export of their meat. In 1901, 1,988 horses passed inspection for slaughter, 1,624 in 1902, and 333 in 1903, the total for the three years being 3,945. Newspapers have reported the slaughter of horses for meat in Chicago for consumption within the State, but the report is merely mentioned as such.

Dog and cat meat, which is produced and consumed on the Continent of Europe, has not entered into the meat production of this country, except in infinitesimal quantities by foreign-born residents.

BUREAU OF ANIMAL INDUSTRY INSPECTION SLAUGHTER.

Under the meat-inspection law, 708 slaughtering establishments were under surveillance by the Bureau of Animal Industry in the fiscal year 1907, and the number increased to 940 in 1912, and then declined to 896 in 1915.

During the period mentioned, from 1907 to 1915, the largest number of cattle inspected in one year was 7,962,189 in 1910, since which year the number declined to 6,724,117 in 1914, followed by 6,964,402 in 1915.

The inspected calves increased rapidly from 1,763,574 in 1907 to 2,295,099 in 1910, but the number considerably declined in 1913, and greatly declined in 1914, in which year 1,814,904 calves were inspected or hardly more than in 1907. In 1915, the number was 1,735,902.

Inspected sheep have increased steadily from 9,681,876 in 1907 to 14,958,834 in 1914, but in 1915 the number declined to 12,909,089.

Irregular fluctuations mark the number of inspected hogs. From 1907 to 1914, the highest inspected number in one year was 35,427,931 in 1909, and the smallest number, 27,656,021, was in the following year. The inspected hogs in 1914 were 33,289,705, but in 1915 the number was 36,247,958, or the highest of the inspection period.

The quantity of meat and meat-food products prepared under the inspection of the Bureau of Animal Industry, including condemned meat and products, was 4,464,000,000 pounds in 1907, and the number increased to 7,280,000,000 pounds in 1912, followed by decline to 7,033,000,000 pounds in 1914. The largest amount of the inspection period, 7,553,070,002 pounds, was reached in 1915. The condemnations are usually from one-quarter to one-third of 1 per cent.

BEEF, MUTTON, AND PORK AS PERCENTAGES OF THEIR TOTAL.

[Table 17.]

If the combined production of beef, mutton, and pork be regarded as equal to 100, it may be noticed that the fraction contributed by beef, including veal, increased from 46.9 per cent in 1900 to 48 per cent in 1909, and that, since mutton, including lamb, remained the

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same, or 3.6 per cent, in both years, the pork percentage varied inversely to the beef percentage, and fell from 49.5 per cent in 1900 to 48.4 per cent in 1909.

GERMANY.

[Table 15.]

On account of the slaughter and inspection law of 1904, the German official records, supplemented by a fraction of estimates for farm slaughter, supply reasonably accurate annual statistics of meat production, beginning with that year. It is supposed that extra-edible parts are not included.

TOTAL BEEF, MUTTON, AND PORK.

In the first year of the record, 1904, Germany produced 6,334,000,000 pounds of beef, mutton, and pork, and the quantity declined to 6,182,000,000 pounds in 1906. From this quantity the production jumped to 6,712,000,000 pounds in 1907, followed by increase to 7,180,000,000 pounds in 1911. Then followed a decline to 6,879,000,000 pounds in 1913, or very nearly the production of 1908 and 1910. Germany reached the highest meat production ever attained by that country in 1911.

BEEF AND VEAL.

A condition that first attracts attention is the relatively high calf slaughter. In every year more calves have been slaughtered for veal in Germany than mature cattle for beef. For instance, in 1913 the cattle, except calves, that were slaughtered for meat numbered 3,592,000, and the veal calves numbered 4,176,000.

The beef and veal production of Germany amounted to 2,262,000,000 pounds in 1904, excluding condemned meat, and the quantity increased to 2,732,000,000 pounds in 1909, after which there was a decline to 2,322,000,000 pounds in 1913, a return nearly to the production of 1904.

The number of cattle and calves slaughtered for meat increased from 7,787,000 in 1904 to 9,456,000 in 1909, and afterwards declined to 7,768,000 in 1913.

BEEF, EXCLUDING VEAL.

The production of beef, excluding veal, increased from 1,878,000,000 pounds in 1904 to 2,271,000,000 pounds in 1909, and afterwards declined to 1,955,000,000 pounds in 1913.

It is interesting to note that, of the total number of cattle and calves killed for meat, the mature cattle were under 44 per cent in 1904, under 45 per cent in 1909, and were over 46 per cent in 1913. That is to say, the calf slaughter was relatively decreasing, not only during the period of increasing meat production but also during its decline.

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VEAL.

In 1913, 4,176,000 veal calves were slaughtered in Germany, or a smaller number than in 1904 or any subsequent year. As many as 5,239,000 veal calves were slaughtered in 1909, a high-water mark year.

The veal production of 1913 was 367,000,000 pounds, or less than in 1904 or any following year.

MUTTON, INCLUDING LAMB.

The mutton, including lamb, production of Germany in 1904 was 140,399,000 pounds, and in subsequent years the quantity went as high as 148,592,000 pounds in 1909, and as low as 126,135,000 pounds in 1913, which is distinctly a low-water mark for the period. Mutton production has declined since 1909 at a marked rate.

The slaughtered sheep and lambs numbered 2,897,000 in 1904, 3,066,000 in 1909, and 2,602,000 in 1913.

PORK.

The swine slaughter of Germany is an important source of meat. The slaughter of 1904 included 20,999,000 hogs, increased to 24,411,000 in 1911, and afterwards declined to 23,666,000 in 1913.

The quantity of pork produced ranged from 3,931,000,000 pounds in 1904 to 4,571,000,000 pounds in 1911, followed by decline to 4,431,000,000 pounds in 1913.

OTHER MEAT.

Germany accepts horse meat and sells it as such, and similarly handles goat meat, and even dog meat.

About 1,200,000 goats are slaughtered annually, about 150,000 to 175,000 horses, and from 6,000 to 8,000 dogs. These three classes of animals provide an appreciable addition to the beef, mutton, and pork supply of that country. In 1904 they equaled 104,000,000 pounds, and the quantity gradually grew to 134,000,000 pounds in 1912, but the quantity for 1913 fell to 126,000,000 pounds.

BEEF, MUTTON, AND PORK AS PERCENTAGES OF THEIR TOTAL.

[Table 17.]

Beef, mutton, and pork combined being regarded as 100, the beef including veal produced in Germany in 1904 was 35.9 per cent. The increase in the next year was to 39.2 per cent, and with fluctuations to 39.6 per cent in 1909, after which year the decline has been steady to 33.9 per cent in 1913.

In 1905, the mutton produced was 2.4 per cent of the total of these three classes of meat, and the percentage has steadily and persistently declined to 1.8 per cent in 1913.

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On the other hand, pork has surely although irregularly gained in relative importance. The pork production in 1905 was 58.4 per cent of the total of these three classes of meat, and in 1913 it was 64.3 per cent.

It should be borne in mind that these percentages stand for relative production and not for consumption.

ITALY.

A thorough investigation of the slaughter of meat animals for food was made in 1903 in every commune in Italy, by the director general of public health. It was found that during the year about 1,500,000 cattle and calves were slaughtered, with a beef and veal production of over 972,000,000 pounds. The 4,300,000 sheep produced over 129,000,000 pounds of mutton and lamb; and the 1,500,000 slaughtered swine produced over 406,000,000 pounds of pork. There were besides nearly 5,000,000 pounds of unclassified meat. The total of beef, mutton, and pork production amounted to 1,511,000,000 pounds. This production is for a population of 33,000,000, a large fraction of which is engaged in agriculture.

UNITED KINGDOM.

[Table 16.]

In the second report, November 17, 1903, of "the committee appointed to inquire into the statistics available as a basis for estimating the production and consumption of meat and milk in the United Kingdom," appointed by the Royal Statistical Society, the details of estimating the annual slaughter of meat animals are presented. The adopted process has been used to estimate the annual meat production and consumption of the United Kingdom from 1890–91 to 1907–8.

TOTAL BEEF, MUTTON, AND PORK.

According to the estimates, the meat production of the United Kingdom, notwithstanding a sharp fluctuation or two, has remained quite steady at about 2,700,000,000 to 3,000,000,000 pounds annually. During the 18 years, from 1890–91 to 1907–8, the highest production—about 3,000,000,000 pounds—is found in the two years 1891–92 to 1892–93, but during the subsequent years of the period the production was from 2,700,000,000 to 2,900,000,000 pounds.

BEEF AND VEAL.

During the two years 1892–93 and 1893–94 the production of beef and veal was exceptionally high, or nearly 1,700,000,000 pounds in each year, but subsequently the production has ranged from about 1,400,000,000 to 1,600,000,000 pounds, with no great fluctuations.

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BEEF, EXCLUDING VEAL.

In each of the two exceptional years above mentioned, beef production was a little under 1,600,000,000 pounds, but subsequently the production ranged from about 1,300,000,000 to 1,500,000,000 pounds.

VEAL.

Veal production in each of the two exceptional years was almost 100,000,000 pounds, but in later years it has ranged from about 80,000,000 to 90,000,000 pounds.

MUTTON AND LAMB.

The people of the British Isles have long been famous mutton eaters, and the production of mutton, including lamb, is a little greater than in the United States. Besides this, great quantities of frozen mutton are imported.

The British mutton and lamb production almost reached 800,000,000 pounds in 1892–93, but generally speaking throughout the 18 years covered by the record the production has ranged from about 600,000,000 to 700,000,000 pounds. As in the case of beef, only a few marked fluctuations are presented.

MUTTON.

Aside from the production of nearly 700,000,000 pounds of mutton, not including lamb, in 1892–93, the general course of production has been about 500,000,000 to 600,000,000 pounds yearly.

LAMB.

In one year, 1892–93, lamb production reached 105,000,000 pounds, but in the other years of the 18-year period the production ranged from about 85,000,000 to 95,000,000 pounds.

PORK.

Pork production is about on a par with the production of mutton and lamb in the United Kingdom, although it fluctuates very freely. About 630,000,000 pounds as a yearly production may be regarded as an average result of slaughtering throughout the 18 years covered by the record, although the production has reached as high as 843,000,000 pounds in 1891–92, and has fallen as low as 474,000,000 pounds two years later.

BEEF, MUTTON, AND PORK AS PERCENTAGES OF THEIR TOTAL.

[Table 17.]

With the understanding that the total production of beef, mutton, and pork is represented by 100, the changes in the relative positions of these three classes of meat throughout the 18 years under review are readily determined for the United Kingdom.

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During the first year, 1890–91, beef was 47 per cent of the total of these three classes of meat, and it rose to 58 per cent three years later, followed by decline to 54.3 per cent the next year. In the more recent years of the period the percentage is about 55.

The relative position of mutton has declined in the later years of the 18-year period, so that in the latest year it is 22.3 per cent of the total of the three classes of meat, but during no year of the 18 did it go higher than 26.4 per cent, in 1892–93.

The sharp fluctuations of pork as an element of the total meat production indicate the uncertainty of the hog as well as its quick recuperating power. The highest fraction possessed by pork in the total meat production is 28.6 per cent in 1890–91, and the lowest fraction, 16.3 per cent, in 1893–94; but in more recent years the fraction has been about 20 to 25 per cent.

OTHER COUNTRIES.

There are many countries for which meat consumption has been estimated by various persons, but the details of their estimates are not obtainable. Necessarily they must have estimated the production of meat, and it would be possible to compute from their per capita average consumption the amount of the estimated production, after adding or subtracting the net result of the foreign trade. In nearly all countries, however, this process would be confined to computing the total meat production without separation into beef, mutton, and pork, and would be giving to the estimates more faith than they should receive. Many of them are presumably rough approximations. It is thought best, therefore, to confine the use of these estimates to consumption, their original purpose, and this use will appear on subsequent pages.

EXPORTS OF MEAT AS A PERCENTAGE OF PRODUCTION.

[Table 18.]

UNITED STATES.

The United States is the only surplus country for which meat production has been ascertained, and consequently it is only for this country that a statement of the exported fraction of production can be made. In 1900, 15 per cent of the meat production of this country was exported, and, in 1909, 8.8 per cent. Of the beef, including veal, 10.9 per cent was exported in 1900 and 6 per cent in 1909.

The export percentage for mutton is 0.1 of 1 per cent in 1900, and 0.3 of 1 per cent in 1909, and for pork 20 per cent for 1900 and 12.2 per cent for 1909.

The foregoing percentages are based on a production of meat in dressed weight, and represent the net foreign trade movement.

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SLAUGHTER AS A PERCENTAGE OF STOCK ON HAND.

[Table 19.]

For most of the countries for which statements of meat consumption are made, one of the factors is the percentage of the stock on hand that is slaughtered during the year, and judgment with regard to this is guided by various estimated factors. The result of such an estimate may be approximately correct or very erroneous.

For three countries—the United States, Germany, and the United Kingdom—it is possible to state with approximate accuracy the ratio between slaughtered animals and the stock on hand, and also the ratio of slaughtered meat per head of stock of animals on hand.

UNITED STATES.

For the United States the statement of slaughter is for 1900 and 1909. Unfortunately the census date for the later year for number of animals in stock is April 15 instead of June 1, as in previous censuses, but an attempt has been made to increase the cattle, sheep, and swine above the number reported for April 15 to a June 1 basis. The Bureau of Crop Estimates has ascertained approximately that there were 6 per cent more cattle on farms and ranges June 1 than on April 15, 20 per cent more sheep, and 19 per cent more swine. Without some correction, June 1, 1900, is not comparable with April 15, 1910, with regard to percentage of slaughter and average meat production per head of stock on hand. The slaughter of 1909 is compared with the stock on hand in 1910.

Correction having been made, it appears that in the United States in 1900 the slaughtered cattle including calves were 28.1 per cent of the total stock of cattle on hand, and, in 1910, 30.9 per cent. This increase of percentage is due both to mature cattle and to calves, because, calves being eliminated, the slaughtered cattle were 19.5 per cent of the total stock of cattle on hand in 1900, and 20.9 per cent in 1910.

There were 28,695,000 cows on farms in 1900, and 32,649,000 in 1910, an increase of one-seventh in 10 years. The cattle including calves slaughtered in 1900, were 66.4 per cent of the stock of cows, and, in 1910, 61.9 per cent. If the calves are excluded from the slaughter, the slaughtered matured cattle were 46.1 per cent of the stock of cows on hand in 1900, and 42 per cent in 1910. The slaughtered calves as related to the stock of cows on hand were 20.3 per cent in 1900 and 20 per cent in 1910.

Sheep have a lower ratio of slaughter than cattle have. In 1900 the slaughtered sheep, including lambs, were 23.3 per cent of the total stock of sheep on hand, and, in 1910, 23.4 per cent.

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Upon relating the slaughter of sheep including lambs, to the stock of ewes, it appears that the percentage for 1900 is 44.9, and, for 1910, 46.1. Apparently sheep barely increased from 1900 to 1910 in percentage of slaughter; but, in connection with this, a fact to be considered is the increase or decrease of the stock of animals, that is, underslaughter or overslaughter.

Swine are nearly two and one-half times as productive for slaughter as cattle are, and over three times as productive as sheep. In 1900 the slaughtered swine were 79.8 per cent of the total stock of swine on hand, and, in 1910, 76.9 per cent.

The census of 1910 makes possible a computation in which the slaughtered swine may be related to the stock of swine over 3½ months old, April 15, and the ratio is found to be 151.5 per cent.

The average amount of meat produced during the year per head of stock of animals on hand may be stated in number of pounds. In 1900, 112 pounds of beef including veal were produced per head of total cattle on hand, and, in 1910, 124 pounds. Excluding veal, the beef production was 101 pounds per head in 1900, and 114 pounds in 1910.

The ratio of beef including veal to stock of cows on hand was 265 pounds per head in 1900, and 249 pounds in 1910. If veal is excluded, the ratio of beef to stock of cows on hand was 239 pounds in 1900, and 228 pounds in 1910. The veal production per stock of cows was 26 pounds per head in 1900, and 21 pounds in 1910.

If comparison of 1910 were to be made with 1890 with respect to the meat productivity of the stock of cattle on hand, a factor of some account would be the younger ages at which steers are marketed and slaughtered in the later year than in the earlier. Beyond the general fact that this is so, nothing is known concerning this younger age.

The mutton including lamb ratio is exactly 10 pounds per head of total sheep on hand for each of the 2 years, and the mutton including lamb ratio per head of stock of ewes was 18 pounds in 1900, and 19 pounds in 1910.

The pork ratio in 1900 was 128 pounds per head of stock of swine on hand, and, in 1910, 118 pounds. In the latter year 233 pounds of pork were produced per head of stock of swine on hand over 3½ months old April 15.

The low meat productivity of sheep kept for wool is conspicuous, and on the other hand the high productivity of hogs, greater than that of cattle in 1900, and nearly as large in 1909, in pounds of meat per head of the stock of living animals, emphasizes the importance of swine as meat producers and offers new testimony to the economic strength of these animals.

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GERMANY.

A statement similar in form to the foregoing can be made for Germany for the four years 1904, 1907, 1912, and 1913.

For the four years mentioned, the number of slaughtered cattle including calves was 40.3, 39.3, 40.4, and 37.1 per cent, respectively, of the total stock of cattle on hand, and if calves are excluded the slaughtered cattle were 17.7, 17.6, 18.4, and 17.2 per cent, respectively.

In 1904, the slaughtered cattle including calves were 74.5 per cent of the stock of cows, and in 1907, 73.9 per cent.

Excluding calves, the slaughtered cattle were 32.7 per cent of the stock of cows in 1904, and 33.2 per cent in 1907. The calf slaughter was 41.8 per cent of the stock of cows in 1904, and 40.7 per cent in 1907.

The ratios for slaughtered sheep including lambs were 36.6, 36.0, 47.9, and 47.3 per cent, respectively, of the total stock of sheep for the four years; and the slaughtered sheep including lambs were 65.6 per cent of the stock of ewes in 1907.

Swine slaughtered in relation to the stock of swine is represented by 111, 101.5, 109.5, and 92.5 per cent, respectively, for the four years.

Upon turning from number of slaughtered animals to pounds of meat produced, it appears that in Germany in the four years mentioned the beef including veal produced per head of the total stock of cattle was 118, 116, 119, and 112 pounds, respectively. The veal being excluded, the beef per head of the total stock of cattle was 98, 97, 100, and 94 pounds, respectively.

The ratios that follow are the quantity of meat per head of the stock of cows for the two years 1904 and 1907. For beef including veal the ratio is 218 pounds for each of the two years; for beef not including veal the ratios are 181 and 182 pounds, respectively; and for veal the ratios are 37 and 36 pounds, respectively.

Mutton production including lamb per head of the total stock of sheep was 18, 17, 23, and 23 pounds, respectively, for the four years; and the mutton including lamb per head of the total stock of ewes in 1907 was 32 pounds.

Pork productivity per head of the total stock of swine declined from the first to the last of the four years covered, the ratios being 208, 190, 205, and 173 pounds, respectively.

UNITED KINGDOM.

The British report on beef production so publishes the statement concerning number of slaughtered animals that only the percentage of the average annual slaughter for the five years 1898–1902 can be

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taken. During this period the slaughtered cattle including calves were 26.6 per cent of the total stock of cattle, and the slaughtered cattle not including calves were 18.6 per cent of the total stock of cattle.

The sheep slaughter compared with the total stock of sheep is represented by 37.9 per cent; and the swine slaughter compared with the total stock of swine, by 121.3 per cent.

The productivity of the stock of cattle on hand in terms of number of pounds of meat per head is remarkably uniform in the United Kingdom, when the yearly figures are combined into 5-year averages, with a 3-year average for the later years. The beef production including veal per head of the total stock of cattle averaged 134 pounds yearly in the five years 1890–1894, 128 pounds during 1895–1899, 131 pounds during 1900–1904, and 134 pounds during 1905–1907. The British being small veal eaters, the ratios of beef not including veal to the total stock of cattle are but little below the foregoing. The veal production per head of the stock of cows averaged 20 to 21 pounds during the long period under review.

For beef production including veal per head of the stock of cows, the ratios are 370, 352, 364, and 367 pounds, respectively, for the four groups of years above mentioned.

The United Kingdom's mutton production including lamb per head of the total stock of sheep was 22 to 23 pounds annually as an average during the four groups of years, and the mutton production not including lamb per head of the total stock of sheep was 19 to 20 pounds.

The average annual pork production per head of the total stock of swine was 166 pounds during the first period of five years, 168 pounds during the second period, 164 pounds during the third, and 159 pounds during the last three years.

COMPARISON OF COUNTRIES.

It is interesting to observe that the slaughtered cattle including calves are a much larger percentage of the total stock of cattle in Germany than in the United Kingdom and in the United States, the reason plainly being the larger consumption of veal in Germany. If calves are excluded, the cattle ratios for Germany are a little below the United Kingdom's ratio and still farther below the ratios for the United States. Germany is considerably above the United States in ratio of slaughtered cattle including calves to total stock of cows, but, on the other hand, much below the United States in slaughter of cattle not including calves to stock of cows. The German ratios of slaughtered calves to stock of cows are twice as high as those for the United States.

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In Germany and the United Kingdom the ratios of slaughtered sheep including lambs to the total stock of sheep are much higher than in the United States, and the same remark applies to swine slaughter in comparison with total stock of swine.

Attention may now be turned to meat production per head of animals in stock. For beef including veal per head of total stock of cattle, Germany is perceptibly below the United Kingdom, and below the United States in 1910, but in veal production per head of stock of cows the German ratios are much above those for the United Kingdom and the United States.

It is interesting to observe that in mutton production including lamb per head of the total stock of sheep the German and British ratios are more than double the 10 pounds of the United States. The German ratios of pork per head of the total stock of swine are considerably higher than the British, and enormously higher than the American.

CONSUMPTION OF MEAT.

TOTAL POUNDS IN MANY COUNTRIES.

[Table 20.]

The mind of the reader should now dismiss thoughts of meat production and think of meat in terms of consumption. Every country produces some meat, a portion of which is exported; and every country imports meat, a portion of which is reexported. The net result of all operations is the meat that remains for national consumption.

For many countries other than the United States, Germany, and the United Kingdom, the per capita averages of number of pounds of meat consumed in a year have been multiplied into the population for the year adopted by the estimator, and thus the number of pounds of meat consumed within the country during the year is computed. All of Asia except Siberia is excluded from the list of countries for which per capita meat consumption has been ascertained, and all of the Western Hemisphere except Canada, United States, Cuba, and Argentina. Nevertheless, the Asiatic exceptions are of people who are not meat eaters, and the exceptions in the Western Hemisphere together form no large fraction of the meat-eating population of the world.

The countries for which the meat consumption is known or has been estimated are these: Argentina, Austria-Hungary, Australia, Belgium, Canada, Cuba, Denmark, France, Germany, Greece, Italy, the Netherlands, New Zealand, Norway, Poland (Russian), Portugal, Russia (except Poland), Spain, Sweden, Switzerland, the United Kingdom, and the United States.

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The total consumption of beef, mutton, and pork and their products in these countries in the latest year for which statements have been published, according to accurate reports, estimates, and computations, as the case may be, amounts to 47,957,000,000 pounds, dressed weight. This represents the bulk of the meat consumption of the world, but not for a recent year in all countries. The consumption is approximately the production. If the consumption of unrepresented countries is included, and if a statement for all countries were obtainable for a recent year, probably the total would be much above 50,000,000,000 pounds dressed weight, and with the inclusion of the extra-edible parts the total may be above 60,000,000,000 pounds.

The population of the countries in the foregoing list, according to the latest censuses and estimates, is about 514,000,000, and these people are the bulk of the world's meat-eaters in any considerable degree.

UNITED STATES.

The consumption of meat and meat products in the United States is estimated to have been 13,792,000,000 pounds, dressed weight, in 1900, and, according to the census, 15,450,000,000 pounds in 1909, 11,708,000 pounds of goat meat not included. The beef consumption not including veal, dressed weight, increased from 6,020,000,000 pounds to 6,968,000,000 pounds; the veal consumption decreased from 758,000,000 pounds to 684,000,000 pounds; and the consumption of beef and veal, dressed weight, increased from 6,778,000,000 pounds to 7,652,000,000 pounds.

Mutton consumption including lamb is relatively small, and increased from 586,000,000 pounds in 1900 to 602,000,000 pounds in 1909, dressed weight still being understood. It is observable that mutton consumption is perceptibly lower than veal consumption.

Pork and pork products lead beef and beef products not including veal in quantity of consumption. In 1900, 6,427,000,000 pounds of pork and pork products, dressed weight, were consumed, and, in 1909, 7,196,000,000 pounds. But if veal is included with beef, the pork consumption is below that of beef and veal.

The extra-edible parts are nearly 18 per cent of the dressed weight of cattle, sheep, and swine in consumption, and make a large total for the United States. These parts of the carcass aggregated 2,615,000,000 pounds for 1900 and 2,763,000,000 pounds for 1909. A trifle more than one-half of the total belongs to beef and veal.

Upon adding the weight of the extra-edible parts to the dressed weight, the total consumption of meat and meat products in the United States reaches the enormous total of 16,407,000,000 pounds in 1900 and 18,212,000,000 pounds in 1909, goat meat not included.

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Nearly one-half of this consumption is that of beef and veal. Mutton consumption declined from 3.75 per cent of the total in 1900 to 3.47 per cent in 1909. Dressed weight and the weight of extra-edible parts still being combined, the pork consumption of 1900 was 7,684,000,000 pounds, and in 1909 it was 8,530,000,000 pounds.

OTHER COUNTRIES.

The various countries must be compared in terms of dressed weight. As has already been stated, the consumption of the United States in 1909 was 15,450,000,000 pounds. Less than one-half of this amount was consumed in Germany in 1913, or 7,399,000,000 pounds. The consumption of Russia (except Poland) has not been ascertained for a year subsequent to 1899, when it amounted to 6,024,000,000 pounds. Perhaps by 1913, for which year Germany's latest consumption is known, Russia had equaled if not exceeded Germany's consumption.

The fourth country in order of total consumption of meat and meat products, dressed weight, is the United Kingdom, with 5,174,000,000 pounds consumed in 1906, and next after the United Kingdom is France with 3,096,000,000 pounds consumed in 1904.

Austria-Hungary, although having a low per capita consumption of meat, yet on account of its large population consumes a great total, amounting to 2,640,000,000 pounds in 1890, the latest year for which an estimate could be found. Possibly it was greater in recent years and perhaps exceeded the French total.

According to the investigation of the director-general of public health, Italy consumed 1,533,000,000 pounds of meat and meat products in 1901; the Australian consumption in 1902 is estimated to have been 1,008,000,000 pounds; Canada's consumption in 1910 was 962,000,000 pounds; Spain's consumption in 1890 was 869,000,000 pounds; Argentina's consumption in 1899 was 616,000,000 pounds; the consumption of Russian Poland is estimated to have been 610,000,000 pounds in 1899. No other country in the list has a consumption record as high as 500,000,000 pounds.

It is observable that the beef, mutton, and pork consumption of the United States, dressed weight, is nearly one-third of the total of all countries included above.

Little is known of the beef consumption of the various countries, and then only in combination with veal. The consumption of beef and veal combined was 7,652,000,000 pounds, dressed weight, in the United States in 1909; in the United Kingdom in 1906 it was 2,644,000,000 pounds; in Germany in 1913 it was 2,555,000,000 pounds, and in France in 1904 it was 1,685,000,000 pounds. The consumption of beef and veal in the United States is greater than

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that of the United Kingdom, Germany, and France combined by a large difference.

The comparison with respect to the consumption of mutton and lamb is very different. The quantity for the United Kingdom is 1,139,000,000 pounds; for the United States, 602,000,000 pounds; for France, 353,000,000 pounds, and for Germany, 128,000,000 pounds. The United Kingdom consumes more mutton than the United States, France, and Germany combined.

The United States consumes somewhat less pork than it does beef and veal, but Germany consumes nearly twice as much. The quantity of pork and pork products consumption for the United States is 7,196,000,000 pounds; for Germany, 4,716,000,000 pounds; for the United Kingdom, 1,349,000,000 pounds, and for France, 1,058,000,000 pounds.

Germany's consumption of beef and veal is about one-third of that of the United States; its mutton consumption about one-fifth, and its pork consumption nearly two-thirds.

The United Kingdom has a consumption of beef and veal that is about one-third that of the United States; of mutton nearly twice that of the United States, and of pork less than one-fifth.

The consumption of beef and veal in France is about two-thirds of that of either Germany or the United Kingdom, and over one-fifth of that of the United States; the mutton consumption of France is over one-half that of the United States, and less than one-third of that of the United Kingdom, and France's pork consumption is about one-seventh of that of the United States, over one-fifth of that of Germany, and about four-fifths of that of the United Kingdom.

MEAT CONSUMPTION PER CAPITA OF POPULATION IN MANY COUNTRIES.

[Table 20.]

By means of estimates of meat consumption derived mostly by multiplying discoverable estimates of per capita consumption by the population for the same year, it is possible to arrive at a general average per capita consumption of meat for the countries in the list of Table 20. These countries have a population of over half a billion, and their per capita consumption averages 93.3 pounds of beef, mutton, and pork and their products, dressed weight, in one year.

UNITED STATES.

In this country the total beef, mutton, and pork consumption, including products, decreased from 181.5 pounds, dressed weight, per capita in 1900 to 170.6 pounds in 1909. If the extra-edible parts are added, the total per capita consumption of meat becomes 215.9 pounds in 1900 and 201.1 pounds in 1909.

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The beef consumption, including veal, dressed weight, declined from 89.2 pounds in 1900 to 84.5 pounds in 1909.

For beef, not including veal, the averages are 79.2 pounds in 1900, and 76.9 pounds in 1909.

The veal average per capita consumption is 10 pounds in 1900 and 7.6 pounds in 1909.

The mutton consumption per capita, including lamb, is somewhat below that of veal, the ratios being 7.7 pounds in 1900, and 6.6 pounds in 1909.

The pork averages are nearly as high as those for beef and veal, and are 84.6 pounds in 1900 and 79.5 pounds in 1909.

CANADA.

Canada has published the following estimates of meat consumption: Beef, mutton, and pork, 109 pounds in 1900 and 137 pounds in 1910; beef including veal, 54 pounds in 1900 and 61 pounds in 1910; mutton including lamb, 11 pounds in 1900 and 9 pounds in 1910; pork including lard, 44 pounds in 1900 and 67 pounds in 1910.

FRANCE.

It has been estimated that in France, in 1904, 79 pounds of beef, mutton, and pork and their products were consumed per capita, the average for beef including veal being 43 pounds; for mutton including lamb 9 pounds; for pork, 27 pounds; and for other kinds of meat, mainly goat and horse meat, 1 pound.

GERMANY.

This country has a dependable annual record extending back to 1904 and ending with 1913 in Table 20, and it exhibits a nearly uniform per capita consumption of meat. The range is from 109.7 pounds to 115.9 pounds. In the consumption of beef including veal the range is from 38.6 pounds to 45 pounds; of mutton including lamb, from 1.9 pounds to 2.5 pounds; of pork, from 65 pounds to 73.4 pounds; and of other meat, mostly goat and horse, but including some dog meat, the range is from 1.7 pounds to 2.0 pounds.

UNITED KINGDOM.

This country also has a long and dependable record through estimates extending from 1891 to 1908. Reduced to 5-year averages, with a 3-year average for the latest years, the per capita consumption of this country has remained at about 120 pounds of beef, mutton, and pork for many years, or extending back to 1896. For the five years preceding that year the consumption averaged 112 pounds. The range of beef consumption, including veal, per capita, for the four

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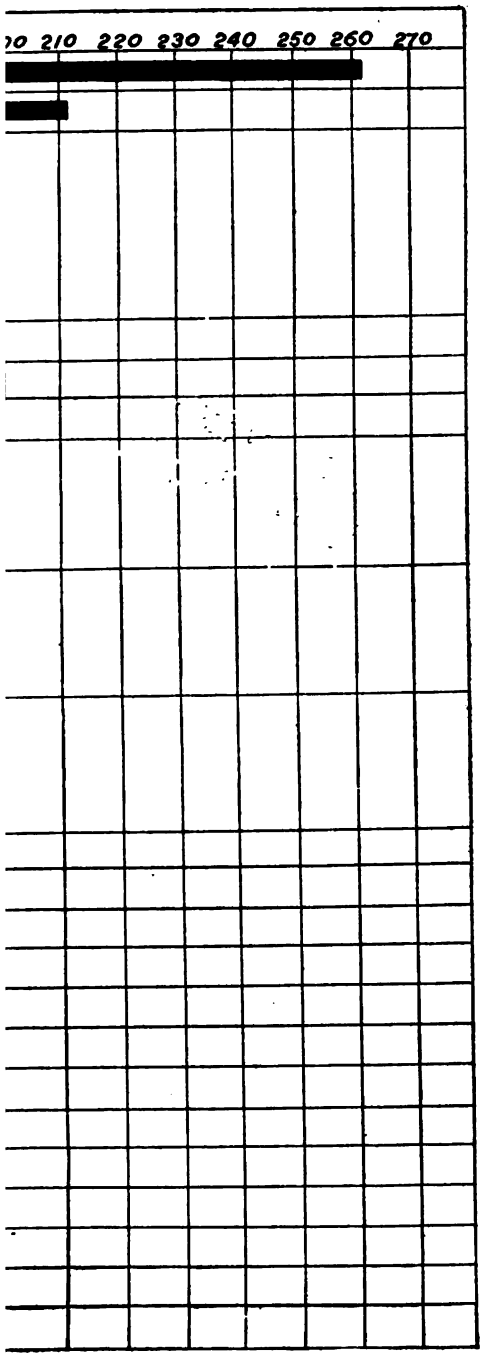

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periods into which the 18 years are divided was from 55 to 60 pounds; of mutton consumption, including lamb, from 25 to 27 pounds; and of pork consumption, from 31 to 38 pounds.

The per capita consumption of home-produced meat during the 18 years, with grouping into four periods, declined from 74 to 64 pounds, while the per capita consumption of imported meat increased from 38 to 55 pounds. The consumption of domestic beef declined from 39 to 36 pounds, while that of foreign beef increased from 17 to 24 pounds. Mutton consumption declined for the domestic product from 19 to 15 pounds, while the consumption of foreign mutton increased from 6 pounds in the first 5 years to 11 pounds throughout the subsequent three periods. With regard to pork, the consumption of the domestic product declined from 16 to 13 pounds, while that of the imported product increased from 15 pounds in the first 5 years to 21 pounds in the succeeding 10 years, with a fall to 20 pounds in the 3 years ending with 1907–8.

OTHER COUNTRIES.

According to the information that has come to hand, Australia's per capita consumption of meat was 262.6 pounds and New Zealand's 212.5 pounds in 1902. On the face of the record, Australia and New Zealand exceed the United States in per capita meat consumption. The average for the United States declined from 181.5 pounds in 1900 to 170.6 pounds in 1909.

Next below the United States in per capita meat consumption is Argentina with 140 pounds in 1899, and Canada is next with an estimate of 137 pounds for 1910. Cuba's average follows with 124 pounds in 1906, and the United Kingdom is next in order with 119 to 121 pounds. Germany's per capita meat consumption is about 112 to 116 pounds. No other country, as far as is known, consumes as much as 100 pounds of meat per capita in one year.

Proceeding down the scale of consumption, France has a trustworthy average of 79 pounds in 1904, Denmark 76 pounds in 1902, Switzerland 75 pounds in 1899, Belgium and the Netherlands 70 pounds in 1902, Greece 68 pounds in 1899, Austria-Hungary 64 pounds in 1890, Norway and Sweden 62 pounds in 1902, Russian Poland 62 pounds in 1899, Russia, except Poland, 50 pounds in 1899, Spain 49 pounds in 1890, Italy a trustworthy average of 46.5 pounds in 1901, and lowest of all, Portugal, 44 pounds per capita in 1899.

The foregoing averages, except where otherwise stated for the United States, are presumably for dressed weight. As far as has been noticed, estimators have paid no attention to the weight of the extra-edible parts.

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MEAT IN THE DIETARY.

This investigation has an interest in the dietary because of the nutritive equivalents of meats with other foods. An increased consumption of other foods per capita may make it possible to diminish the meat consumption per capita. Apparently the per capita consumption of nutrients is increasing, and, if so, along with diminishing meat consumption, there are two reasons why the per capita consumption of other foods or some of them should increase. Vegetable foods may gradually encroach on meat in the dietary.

Sugar, an energy-supplying food, has increased in consumption per capita in this country from 14.1 pounds in 1840 to 30.5 pounds in 1860, to 42.9 pounds in 1880, to 52.8 pounds in 1890, to 65.2 pounds in 1900, to 79.9 pounds in 1910, and to 89.1 pounds in 1914. These quantities are mainly in terms of raw sugar.

It seems that the per capita consumption of wheat has increased considerably within the period of a generation or thereabouts. The estimate of the statistician of this department years ago, 4⅘ bushels yearly, has been increased by recent investigation to about 5.3 bushels per capita, a gain of nearly two-thirds of a bushel, or of over one-eighth in wheat nutrients per capita.

An immense industry in canning and drying fruits, berries, and vegetables has grown up (mostly since 1880 and largely since 1890) with a marked impression on the dietary of the people. In consequence partly of this industry and partly of the cold storage and long distance transportation of fresh fruit, berries, and vegetables, these classes of foods have lost their exclusively seasonal supply of former years, and are now had in liberal degree throughout the entire year.

Whether the per capita consumption of poultry and eggs has increased within a generation is uncertain, but the supposition favors increase.

There are rough indications that meat constituted about one-half of the nutritive elements of the dietary half a century ago in terms of both protein and energy. By 1900 the fraction appeared to have fallen to about one-third, and the decline definitely continued to 1909.

A few words concerning the equivalents of various foods to meat in terms of nutrients may be in order. The yearly consumption of sugar per family has increased since 1891 about 140 pounds. A displacement of meat in the dietary equivalent to 140 pounds of sugar in terms of energy is computed at 264 pounds of sirloin beef, or 350 pounds of round beef, or 156 pounds of cured ham, or 62 pounds of lard.

Computations of the meat equivalent indicate that for every 100 pounds of rolled oats added to the national dietary, an equivalent displacement of meat for protein would be 102 pounds of sirloin beef, or 88 pounds of round beef, or 183 pounds of cured bacon; and for

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energy, 188 pounds of sirloin beef, or 248 pounds of round beef, or 69 pounds of cured bacon.

IMPORTS OF MEAT AS A PERCENTAGE OF CONSUMPTION.

For Germany and the United Kingdom a compilation covering a long series of years has been made to determine the percentages of the beef, mutton, and pork consumption that are and have been imported. Computations could be made for other countries to determine the meat consumption by multiplying the per capita estimate by the population; and the excess of imports over exports of meat and meat products could be ascertained, but the uncertainty concerning the trustworthiness of the estimated per capita consumption of meat has made the undertaking seem unwise. Perhaps a statement for the two most important deficiency countries—the United Kingdom and Germany—will be deemed sufficient, following some references to the United States.

UNITED STATES.

While the United States is a surplus meat country by a large margin, it became a deficiency country in 1914 and 1915 in the supply of fresh, chilled, and frozen beef, of all beef in 1914 and also in the supply of mutton in 1914 and 1915.

If the gross imports of 1914 may be compared with the consumption of 1909, dressed weight, it is computed that imports of fresh, chilled, and frozen beef were 2.6 per cent of the total consumption of beef excluding veal, and 2.6 per cent in 1915; the gross imports of all beef and beef products in 1914 were 2.7 per cent of the total beef consumption, and 2.7 per cent in 1915. Of the total consumption of mutton including lamb, the gross imports of mutton and lamb were 2.1 per cent in 1914, and 2.6 per cent in 1915.

If the gross imports of beef and mutton including lamb, are combined, and the consumption of beef excluding veal, and of mutton including lamb are combined, these gross imports were 2.6 per cent of the consumption in 1914, and 2.7 per cent in 1915.

Perhaps, however, a comparison between gross imports and total production and consumption of meat and meat products is desired. The total gross imports of meat and meat products in 1914 were 1.1 per cent of the total consumption of meat and meat products in 1909, including the extra-edible parts, and 1.2 per cent in 1915, except goat meat; and they were 1 per cent of the production in 1914 and 1 per cent in 1915. The consumption and production used in all computations are for 1909.

The deficient production of fresh, chilled, and frozen beef was 174,000,000 pounds in 1914 and 14,000,000 pounds in 1915. The deficiency of the total beef and beef products in 1914 was 34,000,000

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pounds, or much less than that of fresh, chilled, and frozen beef; in 1915 the deficiency of the preceding year was followed by the surplus of 208,000,000 pounds. The mutton deficiency of 1914 was 8,000,000 pounds; of 1915, 12,000,000 pounds. The surplus of all meat and meat products was 917,000,000 pounds in 1914 and 1,318,000,000 pounds in 1915. The above deficiencies and surpluses are the differences between domestic exports and gross imports, no deduction being made for reexports.

GERMANY.

[Table 21.]

For a long series of years, certainly as far back as 1904, Germany has been nearly self-sustaining in its meat supply. From 1904 to 1913 the national deficiency in the supply of beef, mutton, and pork and their products has ranged from 4.3 to 7.1 per cent of the national consumption of beef, mutton, and pork and their products. In 1913 that country was able to produce 93 per cent of its enormous consumption of beef, mutton, and pork and their products, amounting to 7,400,000,000 pounds.

During the period under examination the net imports of beef and veal ranged from 4.7 to 9.1 per cent of the consumption; the net imports of mutton ranged from 0.1 of 1 per cent to 1.5 per cent of the consumption, and the net imports of pork ranged from 3.4 to 8.3 per cent of the consumption.

UNITED KINGDOM.

[Table 21.]

This country imports a much larger fraction of its meat consumption than any other country does, and, since the per capita consumption of the British is a liberal one, the total imports of meat and meat products far exceed those of any other country.

The home production of beef, mutton, and pork has for many years provided a diminishing fraction of the consumption. On the other hand, the net imports have provided an increasing fraction, and this has grown from 36.5 per cent in 1890–91 to 46 per cent in 1907–8.

The net imports of beef and veal have constituted a fraction of the consumption possessing considerable variability, but the general fact is that this fraction has been an increasing one, and for a few years preceding 1908 had reached about 40 per cent.

The net imports of mutton have shown a marked tendency to increase as a fraction of the consumption. As far back as 1890–91 they were 25.4 per cent of the consumption, and, with some irregularity yet with certainty, they increased to 44.1 per cent in 1907–8.

No such distinct gain has been made by the net imports of pork as a fraction of consumption, yet the general fact is that from 1897–98

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to 1907–8 the net imports of pork were from about 55 to about 60 per cent of the consumption, whereas during the six years previous to that period the percentage was about 40 to 55.

LIVE AND DRESSED WEIGHT.

UNITED STATES.

[Table 22.]

The census of this country has provided average live and dressed weights of meat animals killed in the wholesale slaughtering and meat-packing industry, and these averages, of course, are derived from an immense number of animals. Information is provided for 1899, 1904, and 1909.

The average live weight of beeves, not including calves, was 1,069 pounds in 1899, 1,047 pounds in 1904, and 1,019 pounds in 1909. This declining average may be due to the tendency to slaughter steers at younger ages in recent years than formerly.

The dressed weight of beeves also declined, the average being 583 pounds for 1899, 569 pounds for 1904, and 543 pounds for 1909.

With diminishing live weight the percentage represented by the dressed weight has declined; the percentage for 1899 was 54.5, for 1904 it was 54.3, and for 1909 it was 53.3 per cent.

On the other hand the live and dressed weights of calves have increased. For the three years in order the average live weight was 141, 167, and 168 pounds, and the average dressed weight was 90, 103, and 105 pounds. But the dressed weight as a percentage of live weight has declined since 1899. The ratios for the three years are 63.8, 61.7, and 62.5 per cent, respectively.

Sheep and lambs are combined in the census statement and their average live weight for the three years was 84, 86, and 81 pounds, while their average dressed weight was 43, 43, and 41 pounds, constituting a fraction of live weight represented by 51.2, 50, and 50.6 per cent, respectively.

The tendency toward diminishing weights of swine is as distinct as the similar tendency in the case of beeves. The average live weight of swine for the three years was 218, 213, and 202 pounds, and the average dressed weight was 170, 163, and 154 pounds, and these average dressed weights stand, respectively, for 78, 76.5, and 76.2 per cent of the live weight.

There has been a tendency to hurry the growth of swine and to slaughter at earlier ages than formerly. The most profitable growth of a meat animal is made during the period when it is rapid, and the slow growth that follows is regarded as unprofitable in meat production by feeding.

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DRESSED WEIGHT IN VARIOUS COUNTRIES.

[Table 28.]

CATTLE.

It has been exceedingly difficult to discover definite and useful information concerning the dressed weight of meat animals outside of the United States, and practically impossible to discover live weights. In a few countries the record of average dressed weights covers a long period of years and gains in interest for this reason.

In the export frozen and chilled beef trade of Argentina the average weights of two forequarters and two hindquarters are regarded as making the dressed weight of a beef animal. Since these are mostly well-grown steers, the averages are high compared with the average dressed weight of all cattle slaughtered in the wholesale slaughtering industry. The Argentine export dressed weights of beef animals have, on the whole, increased from 689 pounds in 1906 to 767 pounds in 1913. In the Buenos Aires city supply from cold storage the average beef animal weights ranged from 584 to 605 pounds.

A slaughter record in Queensland, Australia, provides average dressed weights of beef animals from 1903 to 1912, which ranged from 577 to 662 pounds. Since 1904 the averages have, on the whole, declined.

Average dressed weights of oxen, steers, cows, and calves have been ascertained in Paris, France, as far back as 1900. The beef averages are so high that something must be included in addition to what is understood as dressed weight in the United States and in the practice of most other countries. The average for oxen on the whole increased from 692 pounds in 1900 to 922 pounds in 1910, but declined to 807 pounds in 1912. For steers, the average dressed weight increased from 855 pounds in 1900 to 1,041 pounds in 1910, and afterwards declined to 900 pounds in 1912. For cows, the average dressed weight climbed from 551 pounds in 1900 to 833 pounds in 1909, and thereafter declined to 661 pounds in 1912. Similarly with veal calves, the average dressed weight grew from 165 pounds in 1900 to 216 pounds in 1909, and thereafter declined to 198 pounds in 1912.

The German record of dressed weight of meat animals is confined to Prussia, as far as can be discovered. In 1906, the average dressed weight of oxen was 730 pounds, without explanation concerning place of slaughter, but in 1911 distinction was made between animals killed in slaughterhouses and those killed outside of slaughterhouses; the oxen in the former case had an average dressed weight of 699 pounds, and in the latter case of 656 pounds.

The Prussian steers had an average dressed weight of 675 pounds in 1906, and in 1911 they had an average of 661 pounds in slaughterhouses, and 605 pounds outside of slaughterhouses. For cows, the

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average of 1906 was 540 pounds; of 1911, 538 pounds in slaughterhouses, and 508 pounds outside of slaughterhouses. The average calf weight was 88 pounds in 1906, and 95 pounds in 1911 in slaughterhouses, and 78 pounds outside of slaughterhouses.

Japanese cattle are small and few, but a record has been found in a Japanese source which gives yearly averages of weights extending back to 1897. From that year to 1900 the average dressed weight of cattle ranged from 440 to 458 pounds, but all at once in 1901 the average declined about 100 pounds, and no explanation is offered. From 1901 to 1907 the average dressed weight increased from 347 pounds to 366 pounds. In 1908, the average was 352 pounds; in 1909, 356 pounds; in 1910, 438 pounds; and in 1911, 391 pounds.

An official report of the Government of New Zealand states that the general average dressed weight of cattle in that colony is about 800 pounds, but this must refer to high-class steers. This average is higher than the export average of Argentina.

The record for Uruguay presents a quite uniform series of average dressed weights of beef cattle from 1905 to 1910; they ranged from 558 pounds to 580 pounds.

SHEEP.

The dressed weight of export sheep and lambs in Argentina is considerably above the average in wholesale slaughtering houses in the United States. The Argentine average ranged from 53 to 65 pounds from 1906 to 1913. The cold-storage mutton and lamb for supplying the Buenos Aires city market had a dressed weight that ranged from 37 to 45 pounds from 1906 to 1912.

In Queensland, Australia, a slaughter record shows a declining average dressed weight of sheep. In 1903 it was 46 pounds, and in 1904, 50 pounds, followed by an irregular decline to 44 pounds in 1912. For South Australia, a record has been found for "depot" lamb, with average dressed weights ranging from 32 to 37 pounds from 1901–2 to 1909–10.

The Paris record of the average dressed weight of sheep and lambs shows an increase from 42 pounds in 1900 to 66 pounds in 1909, and afterwards a decline to 64 pounds in 1912.

The dressed weight of sheep and lambs in the Prussian record was 48 pounds in 1906, and 50 pounds in 1911 in slaughterhouses.

In one of the official reports of New Zealand it is said that the general average dressed weight of sheep is 60 pounds, and of lambs 36 pounds.

Uruguay's average dressed weight of sheep and lambs ranges from 49 to 54 pounds, from 1905 to 1910.

It may be remembered that for the United States the average dressed weight of sheep and lambs in the large slaughterhouses was 43 pounds

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in 1899 and 1904, and 41 pounds in 1909. In other countries, even where lambs are included in the average, a small fraction of lambs does not pull down the average of sheep and lambs so much as it does in the United States, where the lamb slaughter is relatively large.

SWINE.

Little is known with regard to the dressed weight of swine outside of the United States. A record found in Queensland, Australia, gives averages that range from 77 to 98 pounds from 1903 to 1912.

The record of Paris, France, exhibits an average of 185 pounds in 1900, which increased quite steadily to 254 pounds in 1911, but the average for 1912 was 242 pounds.

A Prussian average of 198 pounds for dressed weight of swine has been found for 1906; for 1911, the average is 201 pounds in slaughterhouses, 193 pounds outside of slaughterhouses, and 226 pounds for home slaughter.

The Japanese record extends back to 1897 and exhibits a range from 117 to 186 pounds from 1897 to 1909.

The United States census average weights may be compared with the foregoing. These are 170 pounds for 1899, 163 pounds for 1904, and 154 pounds for 1909.

A very trustworthy average dressed weight of swine has been compiled annually by the Price Current-Grain Reporter from packing-house experience. The average has in no subsequent year been as high as it was in 1879, the number for that year being 183 pounds. Gradually but irregularly the average has fallen until in 1914 it became 152 pounds, and only 2 intermediate years, 1909 and 1910, were lower.

LOSSES OF MEAT ANIMALS.

CONDEMNATIONS AT SLAUGHTER.

[Yearbook, 1915, p. 538.]

Under the Federal inspection law, the Bureau of Animal Industry condemns wholly or partly the meat animals that are wholly or partly unfit for food on account of diseases. The record shows that 1.60 per cent of the inspected cattle were condemned wholly or partly in 1907, and that the ratio almost uniformly increased to 3.44 per cent in 1915. During this period, the percentage of condemnations for calves has ranged from 0.31 to 0.51 of 1 per cent; for swine, from 1.72 to 3.40 per cent; for sheep, except for 1910, the range has been from 0.09 to 0.15 of 1 per cent, and for 1910, 0.32 of 1 per cent; for goats, the percentage has varied enormously, but has not been above 0.14 of 1 per cent except 0.19 of 1 per cent for 1910, 0.64 of 1 per cent for 1914, and 0.41 of 1 per cent for 1915. The average for all animals increased without a break from 1.47 per cent in 1907 to 2.28 per cent

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in 1911; afterwards it fell to 1.39 per cent in 1912, and thereafter increased to 1.62 per cent in 1913, 1.76 per cent in 1914, and 1.83 per cent in 1915.

The meat condemned after slaughter by the Bureau of Animal Industry has ranged from 0.25 of 1 per cent of all meat and meat food products, prepared and processed, to 0.36 of 1 per cent, except in 1908, when the condemnations equaled 0.73 of 1 per cent.

DISEASE AND EXPOSURE.

UNITED STATES.

[Table 24.]

For a long series of years the Bureau of Crop Estimates has estimated the number of cattle, sheep, and swine lost from disease and exposure on the farms and ranges of this country. Since 1900, from 1,100,000 to 1,475,000 cattle have been lost from disease annually, and the number was less than 1,000,000 for every preceding year to 1890 except 1894 and 1895.

Per 1,000 head of cattle on farms and ranges, those lost from disease since 1889 have ranged from 13 cattle in 1890 to 23.9 cattle in 1903.

From about 600,000 to 1,500,000 cattle have been lost annually from exposure on farms and ranges since 1889, and the ratio per 1,000 head ranges from 10.9 in 1914 to 23.7 in 1903.

Sheep losses from disease have been about the same in number as those for cattle, and considerably larger on account of exposure. Since 1889, from 800,000 to 1,800,000 sheep on farms and ranges have died from disease, and the ratio per 1,000 head of the stock of sheep has ranged from 19 to 28.

The greatest loss of sheep on account of exposure in one year occurred in 1903, when 3,426,000 sheep died from exposure to weather. The number of sheep lost from this cause has been as low as 645,000 in 1894.

The ratio of losses from exposure to 1,000 head of stock of sheep has ranged from 14 in 1892 to 53.6 in 1903.

During the three years 1912–1914, it was ascertained that from 49 to 81 lambs were lost annually from disease and exposure combined per 1,000 head of lambs.

Swine losses from disease have been estimated as far back as 1884, and the absolute number so lost has been as high as 7,000,000 in 1914, a year of widespread hog cholera, and as low as 2,200,000 in 1894. The ratio of losses per 1,000 head of swine in stock has ranged from 44.8 in 1911 to 144 in 1897. The ratio for 1914, when the absolute losses were the largest on record, was 118.9 per 1,000 head.

The 7,000,000 hogs lost in 1914 were worth at the farm about $73,000,000. The average weight of a hog on the farm is about

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150 pounds; therefore more than 1,000,000,000 pounds of hog meat were destroyed by disease, mostly cholera. A billion pounds, live weight, produce nearly 800,000,000 pounds of dressed meat and lard. This amount would be sufficient to furnish every family of the United States (average, 4½ persons) about 40 pounds.

OTHER COUNTRIES.

Very little information is provided by other countries with regard to the losses of meat animals on account of disease and weather. A report for the Cape of Good Hope states that the losses of sheep and goats on account of drought and disease were 57.7 per 1,000 head in 1905, 41 in 1906, 33.9 in 1907, and 33.2 in 1908. The rate of losses of sheep not including goats was 63.7 per 1,000 head in 1909, 34.8 in 1910, 62.9 in 1911, and 36.5 in 1912.

The losses of cattle per 1,000 head from contagious diseases in Austria ranged from 0.20 to 0.33 of 1 animal from 1900 to 1907; of sheep, from 0.06 to 3.31 animals during the same period of years; and, of swine, from 4.34 to 14.83 animals likewise during the same period.

In Belgium, the losses of animals from accidents are combined with those from disease, and the two causes resulted in the loss of 42 to 48 head of cattle per 1,000 from 1900 to 1909; and of 193 to 236 swine per 1,000 during the same period.

PRICES OF MEAT ANIMALS AND MEAT.

No statistics are more difficult to obtain and express than those of prices. The difficulties that stand in the way of handling these statistics are both understood and feared by all persons who have worked at this subject. The statistics of prices of meat animals and meat collected in this investigation for various countries throughout the world have been taken as they have been found. How sound the processes were by which they were originally determined it is impossible to say, because no explanations accompanied the published records. It is certain, however, that the same description of the same kind of animal in the markets of different countries, and indeed in different markets in the same country, may not indicate the same animal in all respects in a commercial sense, and a similar qualification applies to meat. Furthermore, during a long series of years, or perhaps during a short series, the animal or the meat may have changed in commercial qualities, while the description remained the same in the same market.

No country is so rich as the United States in price records, and all that could be done for countries other than the United States, or for most of them, was to take such records as could be found, and

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accept them at their face value as indicating probably, through a series of years, the general trend of prices.

To what extent countries may be compared with one another in absolute prices of meat animals and meat, it is impossible to say. The animals and the meat differ in degree, and there may or may not be import taxes, octroi taxes, and other charges superimposed upon business and trade; and, also, some countries are world markets and others are hedged in by a wall of protection.

ABSOLUTE PRICES.

[Table 25.]

UNITED STATES.

Even in the United States, outside of the special investigation of prices conducted by the National Bureau of Labor Statistics, it is not possible to compile a series of wholesale prices of meat animals under a uniform description of quality for a period of years extending back of 1893. A compilation has been made from contemporaneous records, with annual averages determined by adding 13 monthly quotations for about the first of each month and dividing by 13.

For the prices of steers, the commercial grade known as "native steers" has been adopted. The only market for which a record could be found continuously for this grade, and then only back as far as 1893, was Chicago.

Notwithstanding some fluctuations, the general trend of wholesale prices of these steers in Chicago was upward from 4.45 cents per pound in 1893 to 6.20 cents in 1902. In the next year began a great dumping of range cattle on the market and the price dropped to 4.80 cents, but an upward price movement soon followed, so that by 1909 the mean price for the year had gone to 6.35 cents, or a little above the price for 1902. By 1912, the mean price had reached 7.75 cents; by 1913, 8.25 cents; and, by 1914, 8.65 cents, the highest monthly price for the last-named year being 9.35 cents in September. The mean price for 1914 was almost double the mean price for the five years 1893–1897, or 99 per cent above. In like manner the average price of cattle other than milch cows at the farm increased 118 per cent, the cattle included being composed of all sorts except milch cows.

Another class of cattle for which wholesale prices in the Chicago market could be compiled only as far back as 1893 was "fat cows and heifers." The mean price of 1893 was 2.70 cents per pound, and this rose to 4.70 cents in 1902, after which there was a fall to 3.55 cents in 1904, followed by an almost continuous increase to 4.60 cents in 1910, 5.25 cents in 1912, 6.10 cents in 1913, and 6.55 cents in 1914. The 1914 price was 138 per cent above the mean

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price of the five years 1893–1897, a rate of increase much greater than that of "Other cattle" at the farm, 118 per cent.

Sheep prices in the Chicago market have fluctuated considerably. The mean price of 1893 was 3.95 cents per pound; of 1898, 4.25 cents; of 1905, 5 cents; of 1913, 5.20 cents; and of 1914, 5.55 cents. The general trend of prices has been upward, but with frequent recessions; 1914 was above the average of the five years 1893–1897 by 62 per cent.

The wholesale price of lambs in Chicago was 4.75 cents in 1893, 5.35 cents in 1898, 6.80 cents in 1905, 7.05 cents in 1907, 7.70 cents in 1913, and 8 cents in 1914. Lambs, therefore, increased in price 80 per cent from the mean of the five years 1893–1897, to 1914.

The average price of sheep at the farm per head, all descriptions being included, increased from the mean of the five years 1893–1897 to the end of 1914 by 131 per cent, or much more than sheep and lambs increased in the Chicago market.

Swine prices, also, have highly fluctuated, even more so than those of sheep and lambs. As high a price as 6.60 cents per pound was the mean for 1893 in the Chicago market, but by 1896 the price had fallen to 3.50 cents, from which the price rose to 4.05 cents in 1899, to 5.05 cents in 1900, to 6.85 cents in 1902, to 7.35 cents in 1909, to 8.90 cents in 1910, and this is the highest annual mean price for the whole period. In the next year, 1911, the mean was 6.70 cents; in 1912, 7.55 cents; in 1913, 8.35 cents; and in 1914, 8.30 cents.

The mean price of swine in Chicago in 1914 was 79 per cent above the mean price of the five years 1893–1897. Swine prices at the farm increased 91 per cent from the mean of the five years 1893–1897 to the end of 1914, or somewhat more than swine prices increased in Chicago.

According to the compilation of the National Bureau of Labor Statistics, the mean wholesale price of fresh native sides of beef in the New York market was 6.9 cents per pound in 1890, and in no subsequent year has the price been as low. By 1902 it had risen to 9.7 cents, by 1910 to 10.3 cents, by 1912 to 12.1 cents, by 1913 to 12.5 cents, and by 1914 to 13.5 cents. The 1914 mean price is 77 per cent above the mean of the five years 1893–1897, and compares with an increase of 99 per cent in the price of native steers in Chicago, and an increase of 118 per cent in the farm price of "Other cattle."

Veal prices have been compiled expressly for this investigation. The price of city-dressed veal in New York at wholesale was 9.2 cents in 1890, 10.2 cents in 1899, 11.7 cents in 1909, 13.6 cents in 1910, 14.6 cents in 1912, 16.5 cents in 1913, and 16.4 cents in 1914, an increase of 80 per cent over the mean of the five years 1893–1897. The increase in beef prices in New York was 77 per cent.

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Again, recourse is had to the records of the National Bureau of Labor Statistics, now for mutton prices. The New York mean wholesale price was 9.3 cents per pound in 1890, and did not rise to 10 cents until 1910. By the next year it fell to 7.5 cents; in 1912 it was 8.4 cents; in 1913, 10.2 cents; and in 1914, 10.1 cents, or 50 per cent above the mean price of the five years 1893–1897. The increase in the price of sheep in Chicago was 62 per cent, and of sheep of all descriptions at the farm 131 per cent above the 5-year average.

The mean wholesale price of dressed lamb in the New York market was 10.5 cents in 1890; by 1905 the price had risen to 12.1 cents; by 1910 to 13.1 cents, by 1913 to 13.8 cents, and by 1914 to 14.3 cents, or 63 per cent above the mean of the five years 1893–1897. Lambs increased 80 per cent in the Chicago market.

According to the compilation of prices made for this investigation, the wholesale price of dressed hogs, medium weight, in the New York market was 5.5 cents in 1890. Oscillations in price have been numerous, but eventually the price reached 10.4 cents in 1909, 13 cents in 1910, 10 cents in 1911, 9.7 cents in 1912, 12.3 cents in 1913, and 12.2 cents in 1914. The price of the latter year was 80 per cent above the mean of the five years 1893–1897. The increase in the price of hogs in Chicago was 79 per cent, and in the price of swine at the farm 91 per cent, all kinds of swine being included.

COMPARISON OF FARM AND CHICAGO ANIMAL PRICES WITH MEAT PRICES.—So great is the popular misunderstanding of the trend of prices of meat animals at the farm in comparison with the trend of the prices of marketed animals in Chicago, and of these two tendencies in comparison with the trend of the wholesale prices of meat, that a summary of percentage of price increases, from the mean of 1893–1897 to 1914, is presented below in such concise form as to afford at a glance the comparisons that may be made.

The animals represented by the farm prices are of all ages, sexes, and conditions; the Chicago prices represent marketed animals; substantially, the meat of these marketed animals is represented by the New York meat prices.

The farmer's marketed meat animals have not maintained in as great degree the upward trend of prices claimed for the entire stock of animals at the farm, nor has meat sold at wholesale done so.

Nor has meat sold at wholesale, except pork, maintained in as great degree the upward trend of prices of marketed meat animals. A persistent popular misconception runs to the contrary. Perhaps pork, with its susceptibility to change of prices, would make a contrary comparison in another year.

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The following statement expresses in percentage the rate of increase of 1914 over the mean of 1893–1897:

	Per cent of increase.
Cattle and beef:	
At the farm, cattle other than milch cows	118
Chicago, native steers	99
New York, fresh native sides of beef	77
Veal: New York, city-dressed veal	80
Sheep and mutton:	
At the farm, sheep of all classes	131
Chicago, sheep	62
New York, mutton	50
Lambs:	
Chicago, lambs	80
New York, lambs	63
Swine:	
At the farm, swine of all classes	91
Chicago, hogs	79
New York, dressed hogs	80

OTHER COUNTRIES.

ARGENTINA.—It has been impossible to ascertain the prices of cattle and sheep per pound in Argentina; only mean prices per head have been found, and extending back only to 1903. In that year, in the Buenos Aires market, special freezing mestizo steers sold at the mean price of $38.60 per head; the price reached $40.57 in 1906; $52.28 in 1910; and $68.20 in 1913. The price was a constantly rising one in 1914, and exceeded $80 per head by August. In 11 years the price of these steers about doubled.

The price of fat mestizo cows in the Buenos Aires market increased from $21.22 in 1903 to $46.28 in 1913, and the price was still tending upward in 1914 as far as August. It has more than doubled in 11 years.

Fat frigorifico Lincoln wethers had the mean price of $4.46 per head in the Buenos Aires market in 1903, and after fluctuations rose to $5.73 in 1913, followed by a rising market in 1914. Fat Lincoln ewes increased from $2.98 in 1903 to $5.87 in 1913, and special frigorifico lambs increased from $2.97 in 1904 to $5.11 in 1913, the market in both cases being a rising one in 1914 as far as August.

The only prices of meat that can be found for Argentina are the wholesale prices of beef carcasses delivered to retail dealers in Buenos Aires. The mean price in 1911 was 4.02 cents per pound; in 1912, 5.38 cents; and in 1913, 7.04 cents per pound. This enormous increase of 75 per cent in the price of meat in Buenos Aires in the two years has excited both alarm and protest, but, since Argentina is a country with enormous beef surplus, it has had to participate in the price advance of the world markets.

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AUSTRALIA.—This is another country with a great beef and mutton surplus. No prices of live animals could be ascertained, but wholesale meat prices for the Melbourne market have been found. Just what they stand for in market grades has not been discovered.

The mean wholesale price of beef increased from 4.51 cents per pound in 1890, to 5.2 cents in 1897, to 6.79 cents in 1901, and to 7.57 cents in 1902, after which there was decline and recovery until in 1912 the price was 6.13 cents.

Veal prices were apparently more uniform. In 1890 the mean was 5.83 cents; in 1891, 4.06 cents; in 1912, 4.82 cents; and in no year higher than in 1890.

Mutton prices have varied greatly from 3.04 cents in 1894 to 7.60 cents in 1904; in 1912 the price was 6.59 cents.

Lamb prices were $1.93 per head in 1890 and $2.43 per head in 1912, with no year as high as this except 1904 and 1905, when the prices were $2.71 and $2.51, respectively.

The pork prices of Australia are of local account almost entirely. They have oscillated greatly from year to year, going as low as 6.08 cents per pound in 1895, and as high as 12.93 cents in 1903.

AUSTRIA-HUNGARY.—In the Budapest market, the mean wholesale price of oxen per pound declined from 6.81 cents in 1906 to 6.08 cents in 1908, followed by increase to 7.57 cents in 1913. The price of steers varied much, and was as low as 5.16 cents per pound in 1909, and as high as 7.37 cents in 1911. Cows declined in price from 6.17 cents in 1906 to 4.60 cents in 1908, and subsequently increased to 6.88 cents in 1913.

Swine prices increased on the whole from 10.41 cents per pound in 1906 to 12.58 cents in 1913.

Prices have been obtained for 1906 to 1913 in the Prague market. For oxen, the mean ranges from 5.89 cents per pound in 1908 to 8.88 cents in 1912; for steers, from 5.34 cents in 1908 to 8.58 cents in 1912; for cows, from 5.52 cents in 1909 to 7.44 cents in 1912. Lambs sold for $2.15 to $2.44 per head.

In the Salzburg market, wholesale veal prices range from 12.34 cents per pound in 1906 to 14.36 cents in 1910; mutton from 9.02 cents in 1908 to 11.05 cents in 1909; pork from 11.97 cents in 1906 to 15.27 cents in 1913.

The compilation of prices for Vienna goes back only to 1906. Oxen decreased in price from 7.32 cents per pound in 1906 to 6.54 cents in 1908, and afterwards increased to 9.82 cents in 1912, followed by slight decrease in the next year. Steer prices had a similar trend between 6.81 cents per pound in 1906 and 8.20 cents per pound in 1913. So with cows, with a price usually a little below that of steers. The price of calves declined from 10.31 cents per pound in

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1906 to 9.12 cents in 1908, followed by increase to 12.25 cents in 1911, and subsequent decline to 11.15 cents in 1913.

On the whole, sheep increased in price from 5.52 cents in 1906 to 8.66 cents in 1911, followed by decline to 6 cents in 1913. Swine have varied in price from 9.58 cents per pound in 1907 to 12.52 cents in 1910.

Since 1908 beef hindquarters have increased in wholesale price from 11.33 cents per pound to 16.27 cents in 1913; veal increased from 10.87 cents to 16.67 cents; and from 1907 pork increased from 12.34 cents to 17.68 cents in 1911, followed by decline to 15.37 cents in 1913.

BELGIUM.—The general trend of the mean wholesale price of oxen in cents per pound in the Ghent market was downward from 7.44 cents in 1890 to 5.95 cents in 1897 and 1898, after which, on the whole, especially in the later years, there was a tendency to rise, with 9.28 cents for 1912 as the latest price ascertained. The course of prices for cows and heifers was similar to that for oxen, but a little lower in cents per pound, and without the sharp rise in 1912. The price of calves, when not stationary, has tended upward, and, on the whole, has gained from 9.89 cents in 1890 to 11.91 cents in 1912.

Sheep prices seem to have declined. There was a depression in the market which reached its lowest figure, 5.69 cents, in 1897 and 1898, but the period under review began with 7.44 cents per pound in 1890, and ended with 6.48 cents in 1912, both prices being indicative of their respective ends of the period.

Swine prices, although fluctuating, remained nearly uniform from 7.53 cents in 1890 to 7.18 cents in 1904, after which there was, on the whole, a tendency to increase to 10.42 cents in 1912.

The mean wholesale prices of the beef of oxen tended to decline from 15.76 cents per pound in 1890 to 11.73 cents in 1905, followed by an upward tendency to 15.58 cents in 1912. The same general course of prices is observable in the beef of cows and heifers, and in a considerable degree in the case of veal, with a mean price of 18.12 cents in 1890, falling to 13.66 cents in 1900, and rising to 21.19 cents in 1912.

Mutton prices have been lower since 1898 than they were in that year and previously to 1890, and similarly in the case of pork, except in 1910. The 1890 price of mutton, 15.58 cents, grew to 16.63 cents in 1895, declined to 11.91 cents in 1901, and, subject to fluctuations, increased to 14.09 cents in 1912; while the price of pork fell from 14.09 cents in 1890 to 8.67 cents in 1899, rose to 12.61 cents in 1910, and declined to 9.98 cents in 1912.

The course of prices of meat animals and of meat in the Liege market was similar to that of Ghent.

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CANADA.—Prices have been obtained for meat animals for either Winnipeg or Toronto as far back as 1890, and for meat for Toronto as far back as 1903.

Western prime cattle sold in Winnipeg at 3.75 cents per pound in 1890, and the price remained nearly stationary until 1906, after which it increased to 4.42 cents in 1907, 5.10 cents in 1911, and 6.77 cents in 1913.

Export ewes declined in the Toronto market from 5.50 cents per pound in 1890 to 2.92 cents in 1896, after which there was, on the whole, increase to 5.52 cents in 1913.

The mean wholesale price per pound of choice select hogs in Toronto fluctuated considerably during the earlier years of the period under review, but, on the whole, declined from 4.63 cents per pound in 1890 to 3.87 cents in 1896, followed by increase to 9.01 cents in 1913.

In Toronto the price of dressed beef has sharply risen from 6.50 cents per pound in 1903 to 12.80 cents in 1913, followed by still further increase in 1914. From 7.76 cents per pound in 1903 the wholesale price of veal in Toronto has risen to 11.59 cents in 1913.

Mutton prices have fluctuated considerably in the Toronto market; they rose from 7.82 cents per pound in 1903 to 10.81 cents in 1907, and afterwards declined to 8.44 cents in 1911, with subsequent increase to 10.38 cents in 1913.

The mean wholesale price of dressed pork in Toronto grew from 8.06 cents per pound in 1903 to 13.8 cents in 1913.

DENMARK.—A distinct tendency toward higher prices of meat is found in the Copenhagen market since 1898. In that year the price was 8.86 cents per pound wholesale for the beef of oxen and heifers, and this increased to 11.82 cents in 1913. The mean price of veal grew from 9.64 cents in 1898 to 12.86 cents in 1913, and the price of pork from 8.51 cents to 12.64 cents.

FRANCE.—This country has endeavored to secure its meat supply from within itself and its colonies, and the course of prices indicates a steadiness that is not perceived in countries subject to supply from foreign countries or exporting to foreign countries.

In the Paris market the beef of steers declined from 12.56 cents per pound in 1890 to 10.42 cents in 1899, and afterwards increased to 14.49 cents in 1911, followed by decline to 13.73 cents in 1913. The wholesale price of cows had a similar general tendency.

Veal prices in Paris, which had the mean of 15.41 cents per pound in 1890, did not distinctly show a tendency to increase until 1907, when the price was 16.63 cents; afterwards it rose to 19.58 cents in 1913.

The same course of prices is found in the case of mutton, with 16.46 cents in 1890, 18.38 cents in 1907, and 20.33 cents in 1913.

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Pork prices have been erratic, but on the whole they declined from 12.21 cents in 1890 to 9.19 cents in 1896 and 1897, after which on the whole they have risen to 15.01 cents in 1913.

GERMANY.—The prices of meat animals in Berlin could be found only as far back as 1910, for which year the mean for cattle was 8.78 cents per pound, followed by continuous increase to 10.25 cents in 1913. So for calves the price increased from 11.82 cents in 1910 to 13.82 cents in 1913. Sheep prices grew from 7.58 cents in 1910 to 9.76 cents in 1913. Swine prices ranged during the four years of the available record from 9.87 cents in 1911 to 12.74 cents in 1912. Beef prices have been found as far back as 1890, when the mean for the year was 12.87 cents. By 1903 a distinct rising tendency is found, the price being 13.93 cents, and afterwards it rapidly grew to 18.62 cents in 1913. Veal prices rose from 19.79 cents in 1911 to 23.02 cents in 1913.

Mutton prices, while remaining stationary until about 1899, thereafter grew rapidly to 19.68 cents in 1913. This is a great increase from 11.52 cents in 1891.

The mean pork price was 12.49 cents in 1890, and was not subsequently equaled until 12.83 cents was reached in 1902; subsequently the price on the whole increased, and in 1913 was 15.79 cents.

In Breslau and Munich the course of prices for animals and meat is substantially the same as in Berlin, but generally with lower prices, especially in Breslau.

JAPAN.—Very little beef is eaten in Japan, but the Government has undertaken to report the mean prices for four markets for a series of years. The mean of these four markets is 8.97 cents per pound wholesale in 1903, and the increase is to 13.18 cents in 1908, followed by a decline to 10.35 cents in 1911, and 10.65 cents in 1912.

NETHERLANDS.—It has been possible to ascertain the prices of live hogs and of beef, veal, and mutton in the Rotterdam market as far back as 1898. Notwithstanding fluctuations, the price of hogs per pound has risen from 6.91 cents in 1898 to 9.96 cents in 1913.

The beef of steers gained in price from 7.30 cents in 1898 to 12.79 cents in 1913; of the beef of oxen, from 11.27 cents in 1904 to 14.09 cents in 1913; and of the beef of fat cattle, from 11.57 cents in 1904 to 14.44 cents in 1913.

Veal prices also have tended upward, from 12.77 cents in 1898 to 19.95 cents in 1913; and so with mutton, the price has grown from 7.24 cents in 1898 to 11.01 cents in 1913.

RUSSIA.—The Russian Government has made extensive compilations of price means for meat animals and meat for a total of 50 Governments, and a distinct rising tendency is disclosed in every case. From 1901 to 1912 the price of oxen per head increased from $28.58

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to $39.14; of sheep per head, from $1.92 to $3.08; and of swine, from $5.52 per head to $7.94.

Wholesale beef prices rose from 4.44 cents per pound in 1901 to 6.73 cents in 1912; mutton prices, from 4.14 cents in 1901 to 6.43 cents in 1912; and pork prices, from 5.55 cents in 1901 to 7.99 cents in 1912.

UNITED KINGDOM.—The board of agriculture and fisheries has compiled mean prices of meat animals and meat for England and Wales as far back as 1905. For that year the mean price of fat cattle, first quality, was 13.40 cents per pound, followed by increase to 15.93 cents in 1913. For veal calves the mean price increased from 16.22 cents to 19.26 cents. The price of fat sheep, first quality, declined from 17.07 cents in 1905 to 14.54 cents in 1909, followed by increase to 18.59 cents in 1913. Swine prices have changed irregularly, and were as low as 11.44 cents per pound in 1908 and as high as 15.50 cents in 1913.

English beef has a much higher price in England than any foreign beef, the home beef being neither frozen nor chilled as the imported beef is. From 1905 to 1913 the mean wholesale price of English beef throughout England and Wales increased from 10.97 cents per pound to 12.82 cents; of Argentine frozen hindquaters, from 6.52 cents to 8.36 cents; of Argentine chilled hindquarters, from 8.36 cents to 10.21 cents; of Australian frozen hindquarters, from 6.19 cents to 7.82 cents; and of New Zealand frozen hindquarters, from 7.06 cents to 8.26 cents. There is a distinct difference of price between chilled and frozen beef in favor of the chilled, and an apparent preference for Argentine frozen meat over Australian, while New Zealand frozen beef is held in about the same estimation as the Argentine.

The British and imported veal are held in about the same estimation, now one then the other being preferred. From 1905 to 1913 British veal increased in mean wholesale price in England from 14.34 cents to 17.16 cents; imported veal from 13.80 cents to 17.60 cents.

The English mutton has much the higher price in the English markets compared with imported mutton, all of which is frozen. The New Zealand mutton has a distinctly higher price than the Argentine, and the Argentine a little higher than the Australian. From 1905 to 1913 the mean wholesale price of English mutton per pound in England increased from 14.88 cents to 16.08 cents; of New Zealand mutton, from 8.69 cents (in 1906) to 9.34 cents; of Argentine mutton, from 7.28 cents to 8.69 cents; and of Australian, from 6.84 cents to 8.15 cents.

The story for lamb is in general similar to that for mutton, except that the Australian is preferred to the Argentine, but with only

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a slight difference. From 1905 to 1913 British lamb gained in price in England from 18.03 cents per pound wholesale to 20.10 cents; New Zealand lamb, from 11.41 to 12.71 cents; Australian, from 9.99 cents to 11.51 cents; and of Argentine, from 9.88 cents to 11.41 cents.

In the fresh pork market, the British is slightly preferred and its price has increased from 12.93 cents to 16.18 cents per pound from 1905 to 1913, while the imported pork has increased from 12.06 cents to 14.88 cents.

RELATIVE PRICES.

[Table 26.]

While it is instructive to follow the course of absolute prices in any market, there is at the same time a perception that the fall and rise of prices can not be related by observation to a general level of prices. By reason of not knowing what this general level is, the position of each particular price is not related in the mind to the other prices. To remedy this defect in a statement of absolute prices, the prices of meat animals and of meat obtained in this investigation have been converted into relative prices or index numbers. The mean annual price of the 10 years 1903–1912 is regarded as being represented by 100, and the price for each year is divided by this 10-year mean. By this process, all the prices for a series of years for each commodity in each market become related to one another, and are so expressed as to show definitely the relative degree in which they are above or below the mean for the 10-year period or the general level.

Perhaps it is sufficient to say here that the diagrams that have been prepared to illustrate these relative prices may be found sufficient and that no mention of index numbers in text is necessary. If any one desires to make a special study of the collected prices, either the absolute ones or the index numbers, it will be necessary that he should study Tables 25 and 26 in detail.

SUMMARY OF PRICES.

The matter that has been written under absolute prices and the diagrams that illustrate the relative prices practically indicate the general nature of the information collected concerning the prices of meat animals and meat. The upward trend of prices of all classes of meat animals and of meat, as far as represented in these price statistics, is observable in all countries for which information has been obtained, with perhaps a slight exception in the case of some animal or of some class of meat in here and there a country. The exceptions are inconsiderable and indicate that in the exceptional instance the country is unaffected by the world-wide conditions that are so prominently verified in these price tables.

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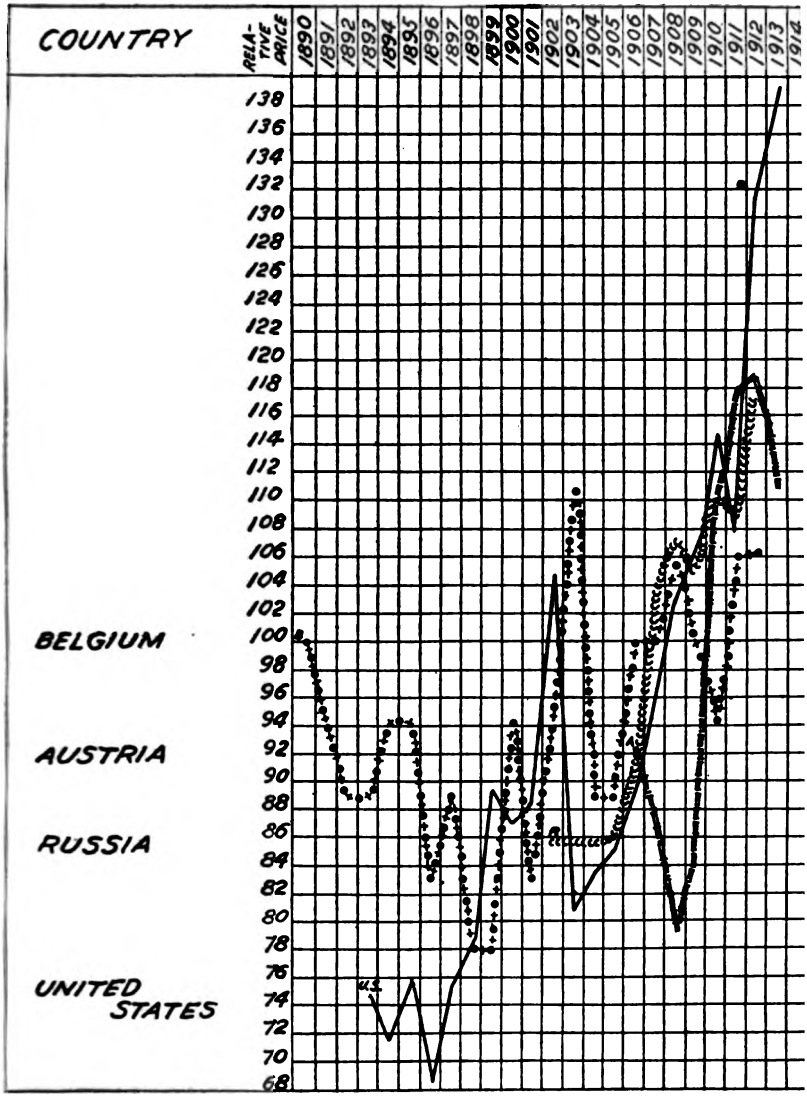

FIG. 21.—Relative wholesale prices of steers or oxen in specified countries (Table 26). [Mean of 1903-1912=100.]

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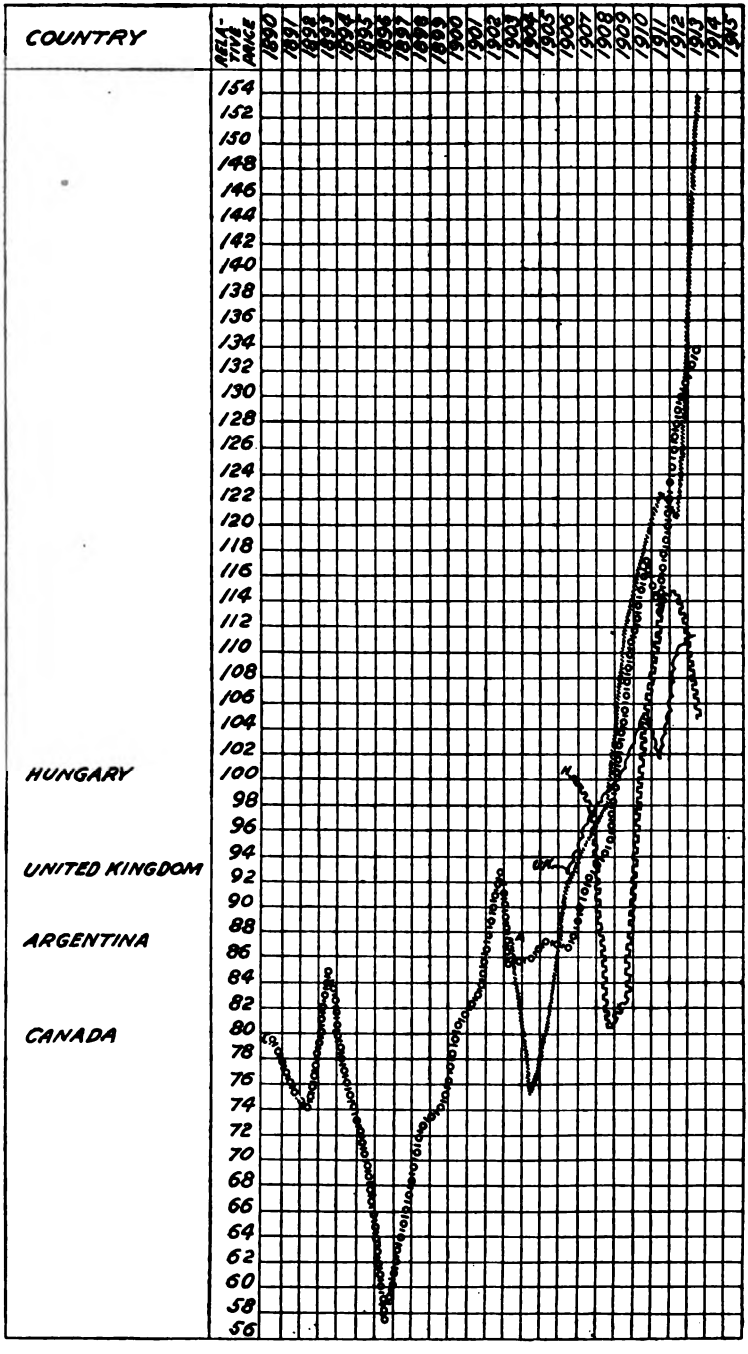

FIG. 22.—Relative wholesale prices of steers or oxen in specified countries (Table 26)—Continued. [Mean of 1903–1912=100.]

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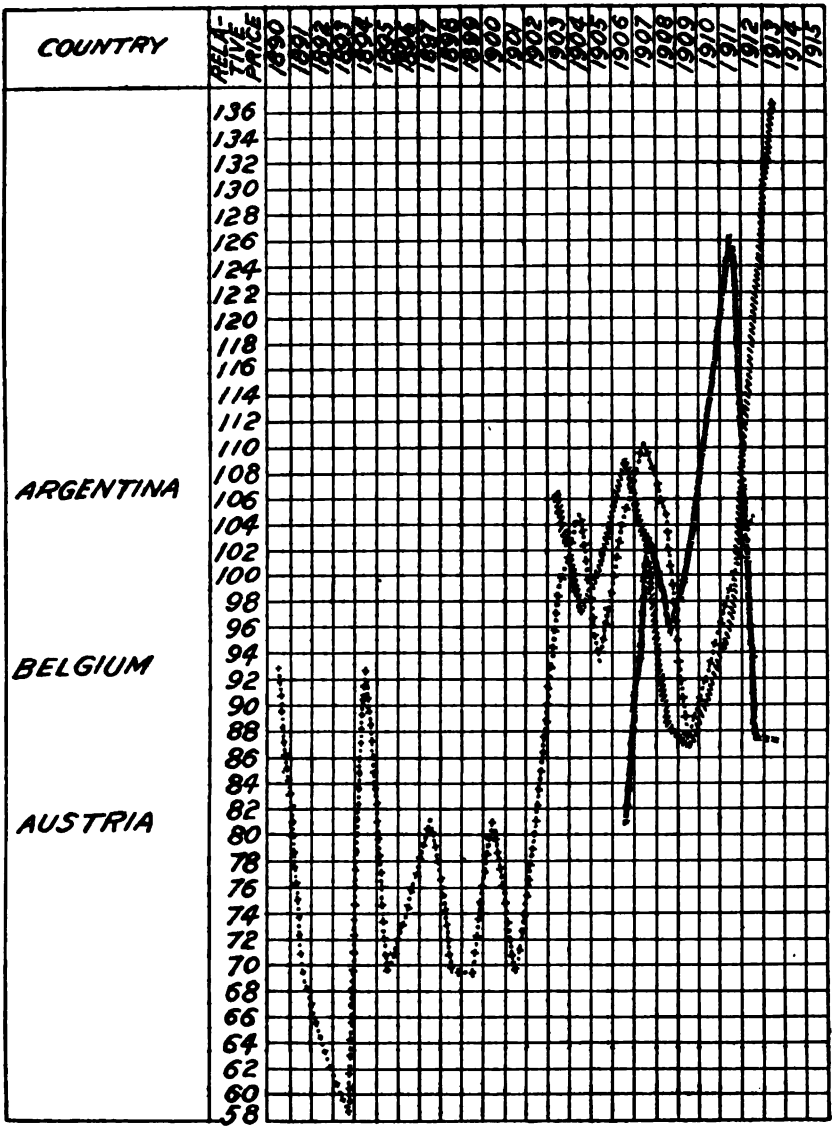

FIG. 23.—Relative wholesale prices of sheep in specified countries (Table 26). [Mean of 1903–1912=100.]

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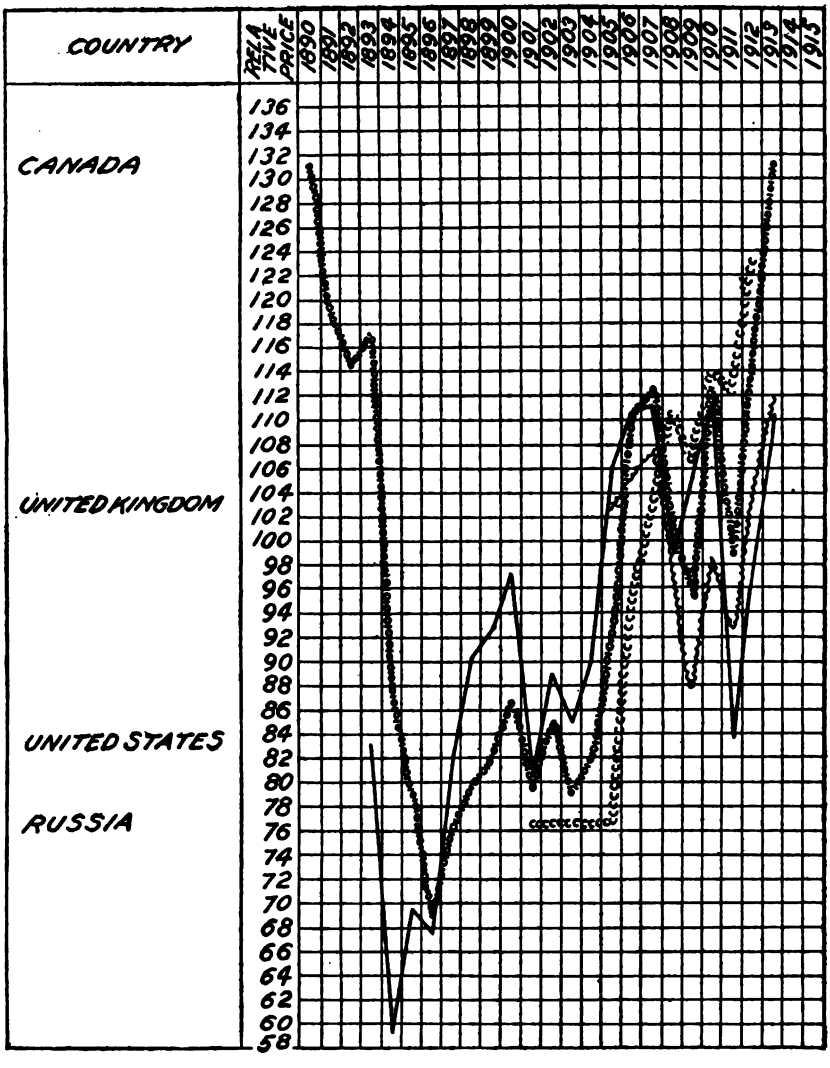

FIG. 24.—Relative wholesale prices of sheep in specified countries (Table 26)—Continued.
[Mean of 1903–1912=100.]

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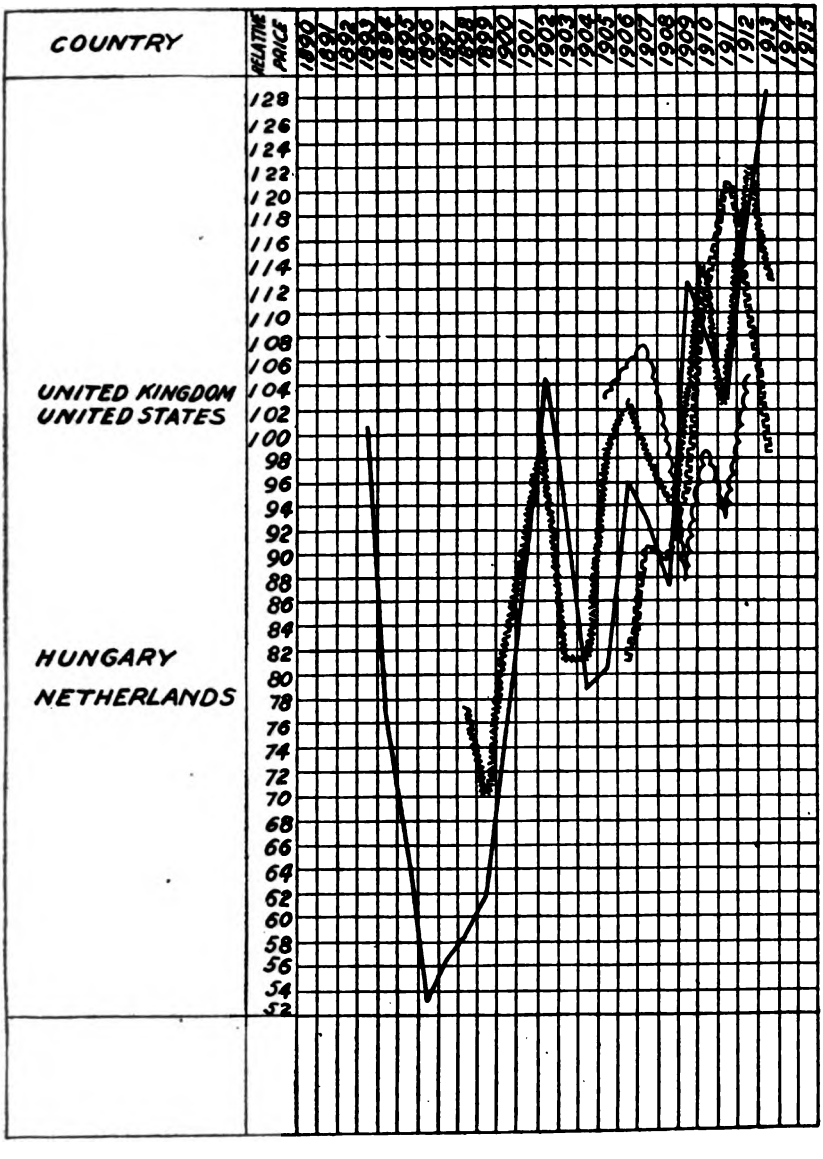

FIG. 25.—Relative wholesale prices of swine in specified countries (Table 26).
[Mean of 1903–1912=100.]

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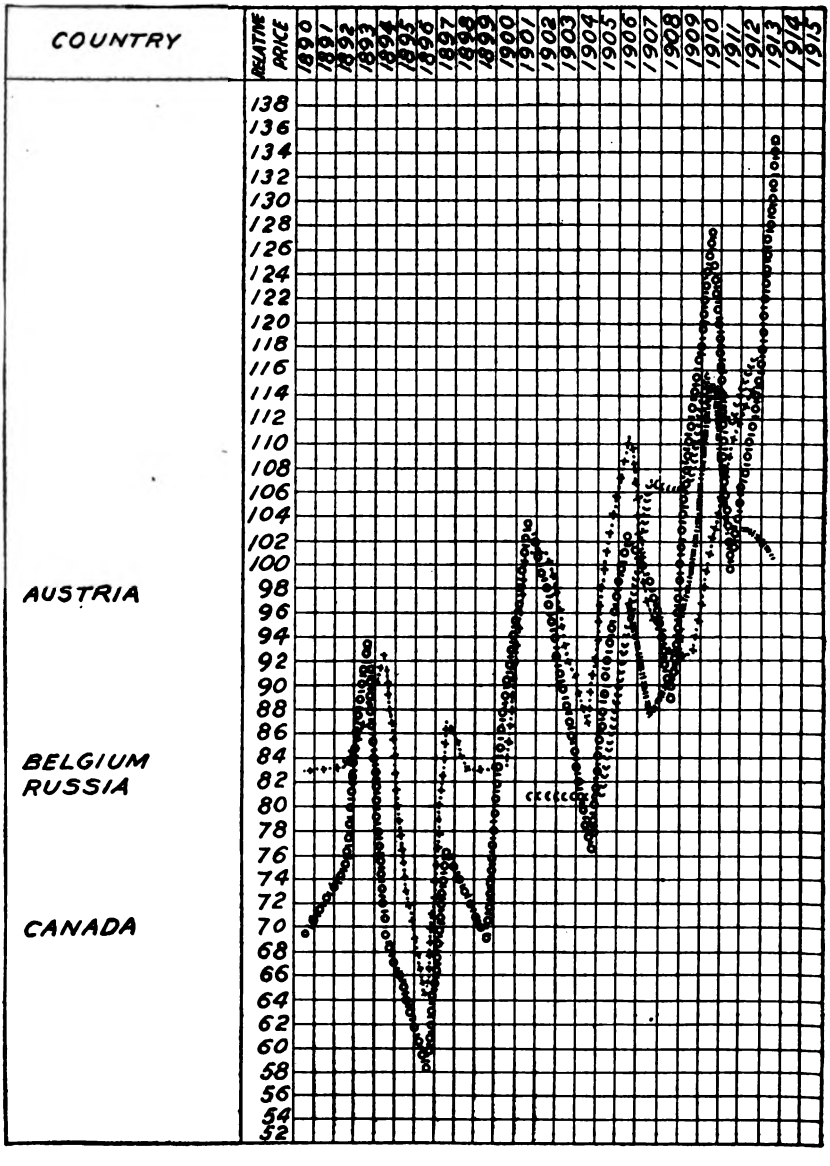

FIG. 26.—Relative wholesale prices of swine in specified countries (Table 26)—Continued.
[Mean of 1903–1912=100.]

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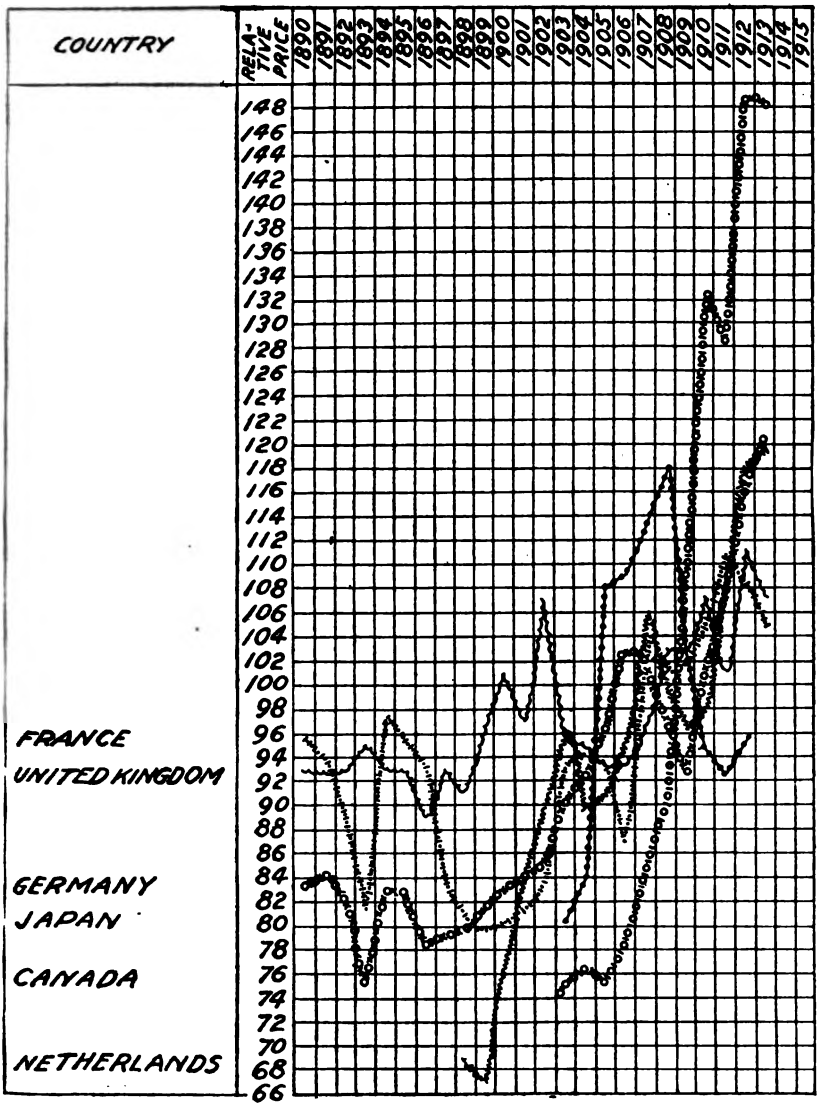

FIG. 27.—Relative wholesale prices of beef in specified countries (Table 26.)
[Mean of 1903–1912=100.]

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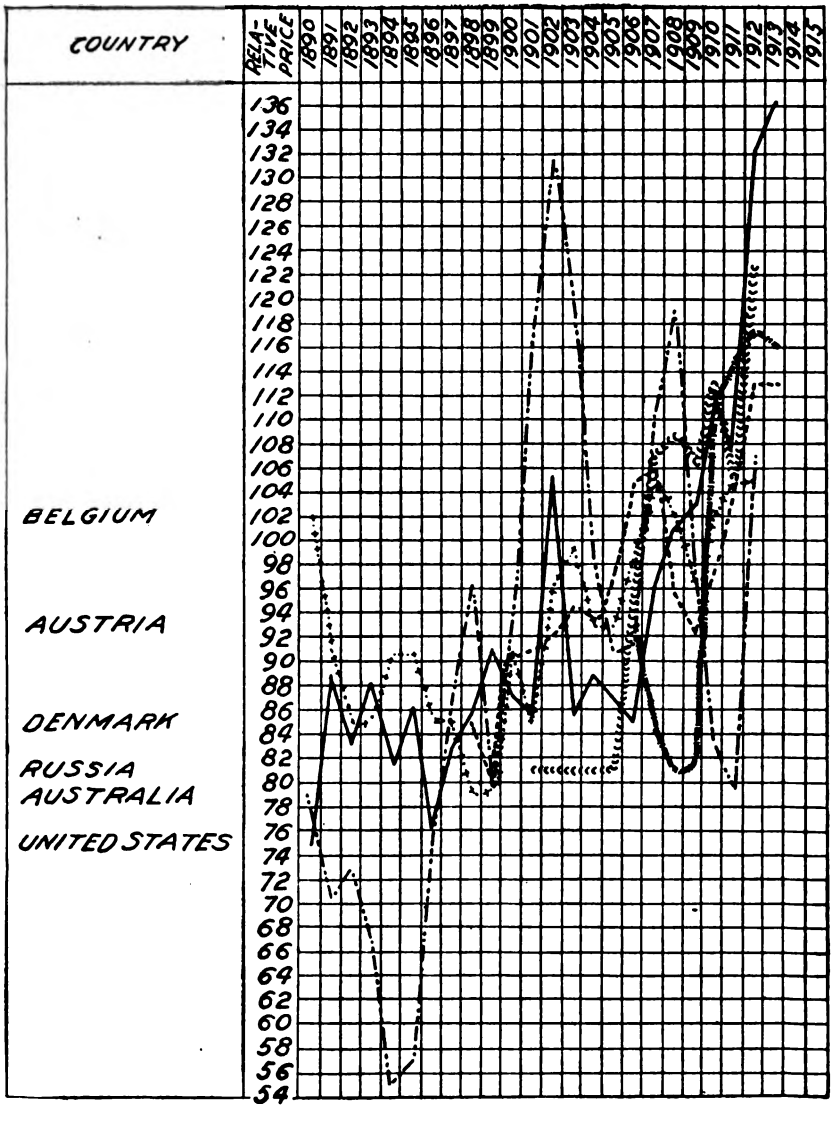

FIG. 28.—Relative wholesale prices of beef in specified countries (Table 26)—Continued.
[Mean of 1903–1912=100.]

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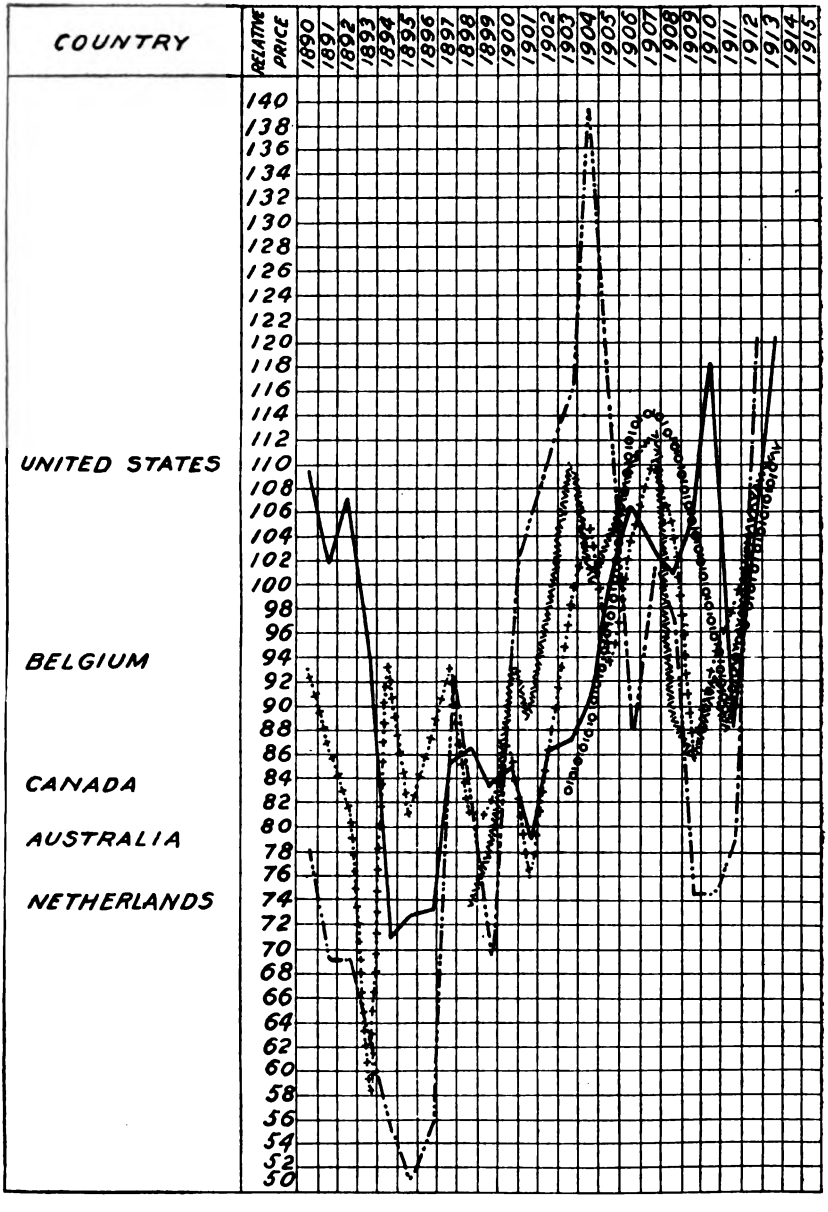

FIG. 29.—Relative wholesale prices of mutton in specified countries (Table 26).
[Mean of 1903–1912=100.]

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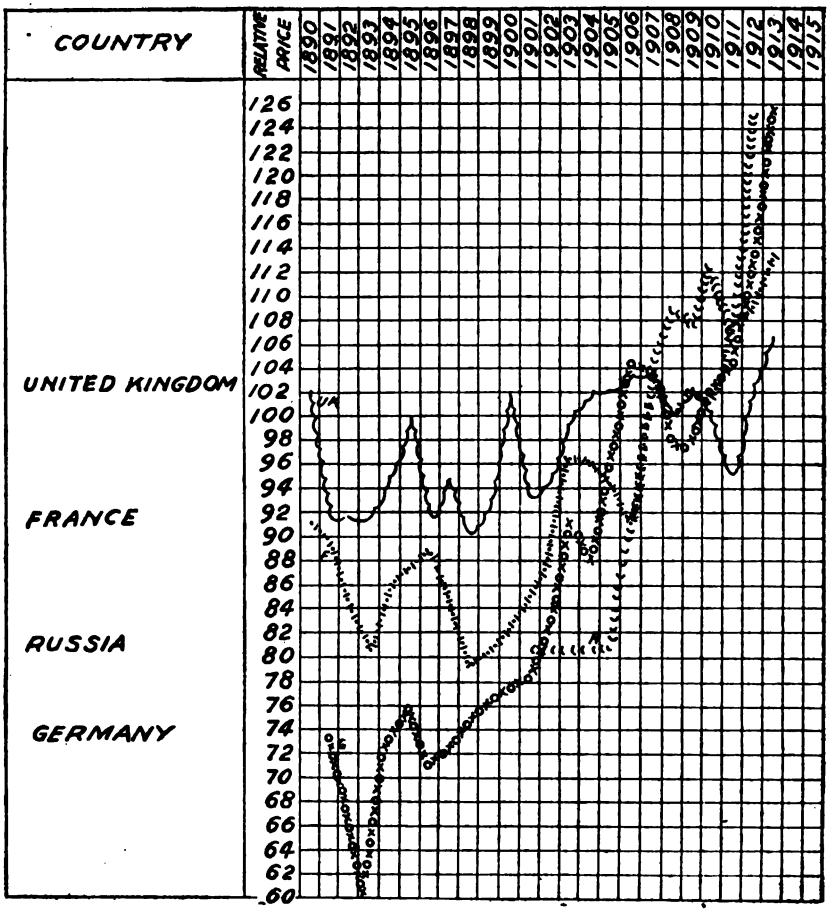

FIG. 30.—Relative wholesale prices of mutton in specified countries (Table 26)—Continued.
[Mean of 1903-1912=100.]

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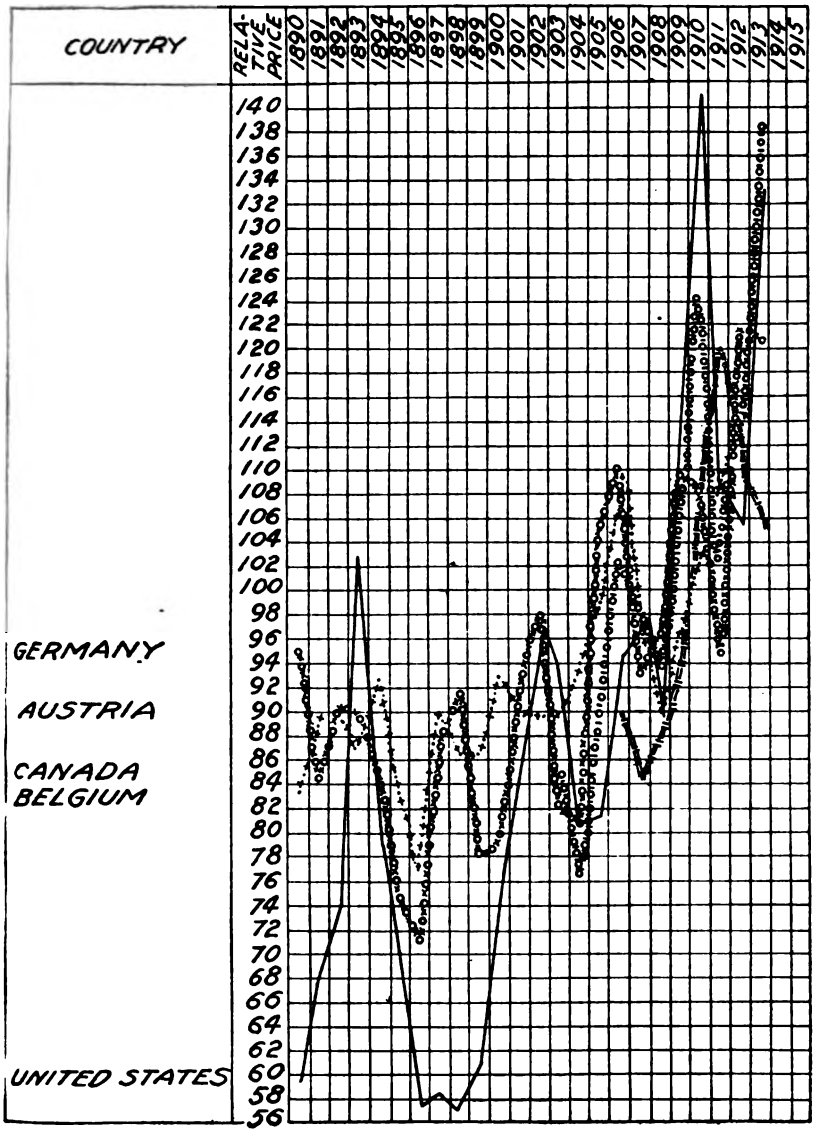

FIG. 31.—Relative wholesale prices of pork in specified countries (Table 26).
[Mean of 1903–1912=100.]

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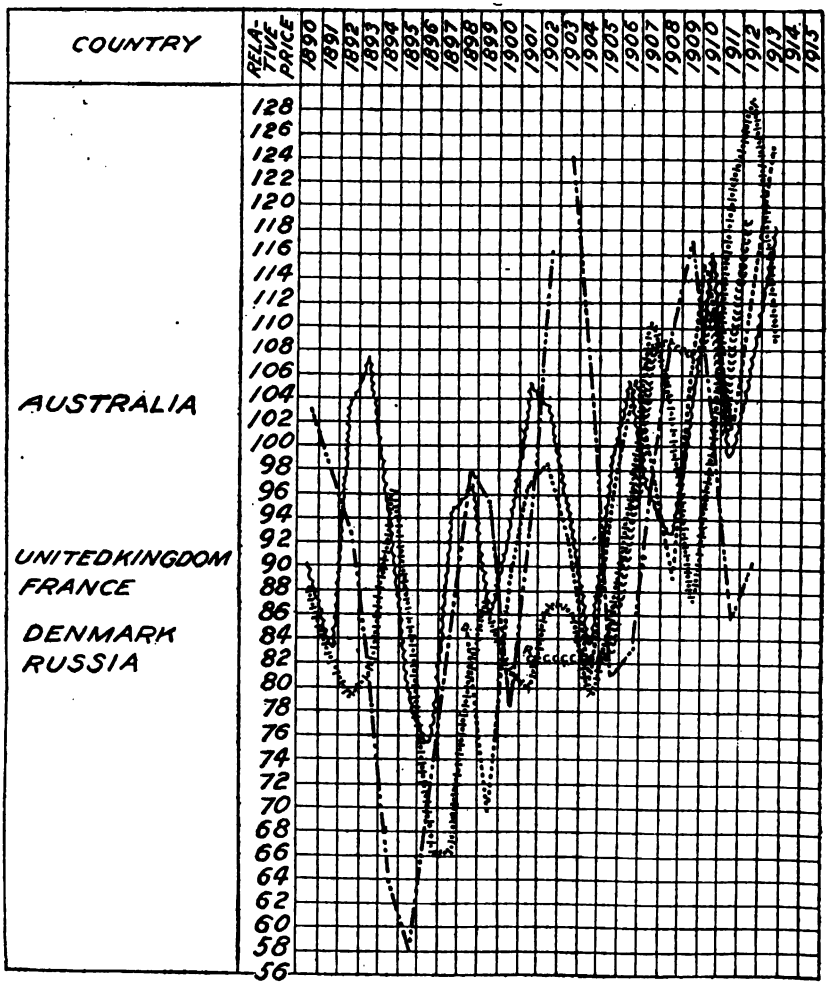

FIG. 32.—Relative wholesale prices of pork in specified countries (Table 26)—Continued.
[Mean of 1903-1912=100.]

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The general fact is that meat production has not kept up with the increase of population in some degree, and with customary demand by meat consumers. The inevitable measure of this changed relationship between supply and demand is price, and the price compilations that have been made restate what has already appeared under a consideration of the number of meat animals throughout the world, namely, that the United States is not alone in its relative decline, but that it is participating in a world-wide movement. Increasing cost of meat production, also, may be regarded as a factor.

In a world-wide survey, it appears that there is a cutting up of ranges into farms, a continuation of the competition between range and farm by including new range areas, and a competition between cheap land and dear land in the production of beef and mutton. Unless the common farmer is taught by the scientific farmer how to produce beef and mutton on high-priced farm land in competition with cheap production on range land, it appears that the farmer feels the strength of the competition. He has withstood the competition, however, in a large degree in the British Isles by reaching supreme excellence, and he has avoided competition in Germany, France, Austria-Hungary, and in some other countries by means of legislative and administrative protection.

FEEDING STUFFS IN SPECIFIED COUNTRIES.

AVERAGE YIELD PER ACRE OF CORN, OATS, BARLEY, AND HAY.

[Table 27.]

The production of feeding stuffs must naturally precede the production of meat animals in each country except in so far as the feeding stuffs are imported, and of course in that case the producing has been done elsewhere. The ability of a country to produce feeding stuffs is in a measure indicated by an average yield per acre, and this appears in Table 27 for many countries. It appears that for the years embraced in Table 27 the average yield per acre of corn was from 23 to 29 bushels in the United States, 20 to 29 bushels in Argentina, 27 to 32 bushels in Australia, 16 to 22 bushels in Austria, 12 to 26 bushels in Hungary, 60 to 72 bushels in Canada, 17 to 21 bushels in France, 38 to 49 bushels in New Zealand, 10 to 21 bushels in European Russia, and 10 to 16 bushels in Asiatic Russia.

From 25 to 32 bushels of oats per acre were produced in the United States, and these averages compare with 48 bushels in Argentina, 13 to 26 bushels in Australia, 25 to 28 bushels in Austria, 23 to 33 bushels in Hungary, 21 to 39 bushels in Canada, 25 to 43 bushels in Denmark, 29 to 36 bushels in France, 33 to 58 bushels in Germany, 29 to 42 bushels in New Zealand, 16 to 22 bushels in European Russia, 14 to 19 bushels in Asiatic Russia, and 40 to 44 bushels in the United Kingdom.

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In a comparison of countries with regard to the average yield of barley per acre, it appears that the range in the United States was from 22 to 26 bushels; in Australia, from 11 to 22 bushels; in Austria, from 20 to 25 bushels; in Hungary, from 19 to 26 bushels; in Canada, from 20 to 30 bushels; in Denmark, from 34 to 41 bushels; in France, from 23 to 26 bushels; in Germany, from 27 to 41 bushels; in New Zealand, from 23 to 38 bushels; in European Russia, from 11 to 16 bushels; in Asiatic Russia, from 11 to 13 bushels; and in the United Kingdom, from 33 to 36 bushels.

Hay production per acre nowhere averages as many as 2 tons for the years mentioned. For the United States the range is about 1.09 to 1.43 tons per acre; for Australia, 0.87 to 1.58 tons; for Austria, 1.2 to 1.4 tons; for Hungary, 0.8 to 1.4 tons; for Canada, 1.2 to 1.4 tons; for France, 1.4 to 1.8 tons; for Germany, 1.3 to 1.9 tons; for European Russia, 0.6 of 1 ton for the only year for which information is given; for Asiatic Russia, 0,4 to 0.5 of 1 ton; and for the United Kingdom, 1.4 to 1.8 tons from permanent grass.

AVERAGE PRODUCTION OF CORN, OATS, BARLEY, AND HAY PER CAPITA.

[Table 27.]

Average production per capita of corn, oats, barley, and hay has been compiled for various countries for inclusion in Table 27. For the years given, the production of corn in the United States per capita ranges from 19.7 to 35.1 bushels; in Argentina, from 22 to 25.1 bushels; in Australia, from 1.9 to 3 bushels; in Austria, from 0.5 to 0.8 of 1 bushel; in Hungary, from 5.5 to 9 bushels; in British South Africa, from 2.1 to 4.4 bushels; in Canada, from 2.2 to 4.8 bushels; in France, from 0.5 to 0.7 of 1 bushel; in New Zealand, from 0.4 to 0.9 of 1 bushel; in European Russia, from 0.3 to 0.6 of 1 bushel; and in Asiatic Russia, from 0.5 to 1 bushel.

The average production of oats per capita of the population of the United States for the years given ranges from 5.5 to 12.9 bushels; of Argentina, for the only year given, 5.5 bushels; of Australia, 1.3 to 3.7 bushels; of Austria, 4.4 to 4.8 bushels; of Hungary, 3.4 to 4.7 bushels; of British South Africa, from 0.5 to 1.1 bushels; of Canada, from 17.3 to 52.2 bushels; of Denmark, from 12.3 to 17.5 bushels; of France, from 7.3 to 9 bushels; of Germany, from 6.5 to 10.2 bushels; of New Zealand, from 14 to 21.6 bushels; of European Russia, from 6.8 to 7.5 bushels; of Asiatic Russia, from 3.1 to 3.8 bushels; and of the United Kingdom, from 3.7 to 4.7 bushels.

The average production of barley per capita for the years contained in Table 27 ranges from 0.2 to 1.9 bushels in the United States; from 0.3 to 0.9 of 1 bushel in Australia; from 2.3 to 2.8 bushels in

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Austria; from 2.6 to 3.6 bushels in Hungary; 0.2 of 1 bushel in British South Africa; from 3.6 to 7 bushels in Canada; from 8 to 9.3 bushels in Denmark; from 1.1 to 1.3 bushels in France; from 2.2 to 2.6 bushels in Germany; from 1.2 to 2.1 bushels in New Zealand; from 1.9 to 3.3 bushels in European Russia; from 1.2 to 1.3 bushels in Asiatic Russia; and from 1.4 to 2.2 bushels in the United Kingdom.

In the United States the hay production per capita of the population for the years mentioned in Table 27 ranges from 0.6 to 1.1 tons; in Australia, from 0.3 to 1 ton; in Austria, from 0.3 to 0.4 of 1 ton; in Hungary, from 0.4 to 0.6 of 1 ton; in Canada, from 1.4 to 1.7 tons; in Denmark, from 0.4 to 0.9 of 1 ton; in France, from 0.4 to 0.5 of 1 ton; in Germany, from 0.4 to 0.5 of 1 ton; in European Russia, 0.3 of 1 ton for the only year mentioned; in Asiatic Russia, from 0.4 to 0.5 of 1 ton; and in the United Kingdom, from 0.2 to 0.3 of 1 ton from permanent grass.

PRICES OF CORN, OATS, BARLEY, AND HAY.

[Table 28.]

The prices of feeding stuffs have an important bearing on the cost of producing meat, and these prices vary greatly from country to country. A comparison of many countries in this respect is made in Table 28, in which are presented the prices of corn, oats, barley, and hay, mostly in primary markets and in wholesale lots. For the United States, however, the price given is the average at the farm December 1. Only a few selected years have been included in this table.

For the years given, the average farm price of corn at the farm ranged from 28.3 to 69.1 cents per bushel in the United States; from 38.5 to 63.7 cents in Argentina in primary markets; from 66.9 to 117.6 cents in Australia; 80.4 cents in the only year given in Austria; from 54.2 to 77.6 cents in Hungary; from 74.9 to 95.4 cents in Cape of Good Hope, British South Africa; from 49.6 to 76.1 cents in Canada; from 75.4 to 101.9 cents in France; from 73.6 to 102.6 cents in Germany; from 60.8 to 158.2 cents in New Zealand; and from 49.7 to 67.7 cents in European Russia.

The average farm price of oats, for the few years included in Table 28, ranged from 22.9 to 40.5 cents per bushel in the United States; in primary markets, from 17.9 to 34.2 cents in Argentina, from 35.7 to 68.9 cents in Australia, from 37.3 to 46 cents in Austria, from 34.9 to 55.7 cents in Hungary, from 33.7 to 46.7 cents in Cape of Good Hope, British South Africa, from 31.2 to 41.9 cents in Canada, from 46.5 to 56.3 cents in Denmark, from 45.6 to 59.3 cents in France, from 42.7 to 63.3 cents in Germany, from 35.7 to 73 cents in New Zealand, from 25.1 to 45 cents in European Russia, from 16 to 48.4

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cents in Asiatic Russia, and from 36.2 to 47.6 cents in the United Kingdom.

Barley prices on the farm in the United States, for the few years included in Table 28, ranged from 40.3 to 70.8 cents per bushel; in primary markets in Australia, from 56.5 to 101.2 cents; in Austria, from 59.2 to 70.9 cents; in Hungary, from 50.3 to 75.4 cents; in Cape of Good Hope, British South Africa, from 77.9 to 98.5 cents; in Canada from 44.3 to 60.7 cents; in Denmark, from 63.1 to 85.4 cents; in France, from 58.3 to 82.6 cents; in Germany, from 67.6 to 85.2 cents; in New Zealand, from 52.6 to 116.8 cents; in European Russia, from 39.7 to 65.7 cents; in Asiatic Russia, from 30.1 to 55.4 cents; and in the United Kingdom, from 64.0 to 83.7 cents.

Hay prices at the farm in the United States, for the few years included in Table 28, averaged from $7.04 to $12.43 per ton; in primary markets, from $14.81 to $27.48 in Australia, from $4.60 to $19.47 in Cape of Good Hope, British South Africa, from $9.12 to $14.04 in Canada, from $8.63 to $14.53 in France, from $7.38 to $22.81 in New Zealand, from $8.56 to $9.13 in European Russia, from $3.99 to $8.84 in Asiatic Russia, and from $15.75 to $18.47 in the United Kingdom.

NOTES ON SELECTED COUNTRIES OF MEAT PRODUCTION.

Much information was collected in this investigation in the search for facts for many countries of meat production. Some of these countries are of large actual production and others of small production, and there are several countries of both sorts that apparently may have an enormous potential increased production. The object of the following references to these countries is to present prominent features and not to enter into any extended and detailed examination.

ARGENTINA.

RISE OF THE EXPORT TRADE.

Many years ago Argentina established an export trade in salted beef, at a time before fresh beef was preserved by freezing or chilling, and years ago also live cattle were exported, chiefly to England. In the course of time Argentine cattle became infected with the foot-and-mouth disease, and the British Government, to protect home cattle, prohibited the importation of live cattle from Argentina.

Argentina, however, had become too important a source of fresh beef to the United Kingdom to be lost, and consequently British and other companies established slaughtering and freezing works in Argentina and exported the frozen beef, mostly to England.

A revolutionary element was introduced into the Argentine exportation of frozen beef by the diminishing per capita supply of beef in

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the United States, which rapidly led to the substantial extinction of the export trade of the United States in refrigerated beef in 1914. This beef had mostly gone to the United Kingdom. Four of the great slaughtering companies of Chicago and other cities bought or built slaughtering and chilling or freezing establishments in Argentina and speedily dominated the business of slaughtering beef animals there for export.

A frigorifico is a large slaughtering establishment that chills or freezes meat and exports it. In 1913, there were 10 separate establishments in Argentina and 2 in Uruguay, but some of these were under the same ownership and control, and there was a prospect that two new plants in Argentina would soon be in operation.

The improvement of Argentine beef cattle has been speedily and intelligently performed. Argentine cattle owners have been the readiest and best buyers of the British pure-bred beef cattle, and have bought them in large numbers. So rapidly have the Argentine cattle herds been improved in beef qualities in recent years that they are now producing export beef of high quality.

CONDITION OF THE CATTLE-PRODUCING INDUSTRY.

The conditions under which beef cattle are kept and the essential facts relating to the beef-animal producing industry have been under observation by three noted experts of this country, one of them as special agent of the tariff board in 1911. The Argentine beef, both for home consumption and for export, is not corn fed. Part of it is the product of native pastures, but the best of it is fed on alfalfa, of which there are 6,000,000 acres.

In the Province of Buenos Aires, reports the special agent of the tariff board, "the land is worth too much money on the market to be profitable with cattle or sheep grazing. The summer droughts make it hard to grow cultivated grasses. Alfalfa is a success in every part of the country." "Agriculture is coming in rapidly and lands are constantly being subdivided into farms. Never, so far as was noted, do the farmers keep live stock on their farms more than the animals needed for work, or perhaps some cows for dairy use, or a few sheep bought for food to be killed off one at a time as needed." One-third of the cattle of the Republic are in this Province.

Ranchmen often lease lands to the farmers or colonists, usually for wheat growing. This withdraws the land from stock growing for three to five years, when it is sown to alfalfa and returned to stock again, while the colonist moves on to develop another piece of land from wildness to wheat and to leave it later in turn to alfalfa.

"The Province of Entre Rios," says the special agent, "is fully occupied and fully stocked with sheep and cattle. It is a land where

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perennial grasses are not much seen, and those found are of hard, coarse kinds, of little use. The nutritious grasses are mostly annuals, and annual clovers abound. The Province is going rapidly to agriculture."

Concerning the Province of Corrientes, the special agent writes that "it is a great cattle country, but many of the herds are of the unimproved native stocks, with wide horns and huge bony frames. They go to the salting works at about five or six years of age. Good cattle thrive in southern Corrientes and some day doubtless will cover all of the Province."

"There is no probability of much immediate development of the live-stock industry" in the Province of Chaco. In the Province of Santa Fe "the number of cattle, now 2,639,480, will increase, no doubt, owing to the laying down of lands to alfalfa." "In Pampa Central the 5,000,000 sheep are decreasing, due to the coming in of agriculture. Cattle, on the other hand, are likely to increase, as it is a great alfalfa-growing region."

In summing up the results of his observations in Argentina, the special agent of the tariff board states that in his opinion "there is no doubt that sheep breeding in Argentina has passed its meridian and is now on the decline. This is because of the large immigration to Argentina and the continually laying down of lands to agriculture." "Contrasting cattle breeding with sheep breeding, the production of good cattle on alfalfa will no doubt increase in Argentina as time goes on, especially if prices for beef remain good. It is probably the most marvelous place for cattle breeding in the world. This is especially true of the regions where alfalfa is grown. In Argentina, cattle seem to bloat very little on alfalfa pasture. They run in thousands on the alfalfa pastures, which are perennial, and in winter eat alfalfa hay from ricks piled up for them, without men taking the trouble, as a rule, to take it out for them."

It is important to remember, however, that the great defect in Argentina is the weather, which is most uncertain. Rains may come at any time of the year or they may not come at all. Sometimes a region will be without much, or with little, rain for one, two, or three years. The rainfall in normal years is just sufficient for the grasses and crops. In exceedingly rare seasons it is excessive. Perhaps in half the years it is too light. One year in seven, more or less, it is withheld. In 1830 nearly all the cattle, horses, and sheep of Argentina perished for want of water, "but no doubt the losses were much more severe than they could be to-day, for wells and windmills abound on every hand."

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DOCTOR MELVIN'S CONCLUSIONS.

After Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, visited Argentina in 1913 and investigated the cattle and beef industry, he summarized his conclusions as follows:

(I) BEEF PRODUCTION IN ARGENTINA.

(1) The growth of the Argentine export beef trade has been a remarkable development of the last 15 years.

(2) At present the Argentine beef output seems to be all that is warranted by the present supply of breeding animals.

(3) The Argentine beef output may be increased, the extent of the increase depending upon the maintenance of remunerative prices, the use of alfalfa pastures, and the relative importance of grain growing.

(4) Very little of the Argentine beef is cornfed, and the large profit in raising cattle on alfalfa pasture when prices are satisfactory may in itself tend to check the growing of corn for fattening.

(5) Highly enlightened and long continued breeding operations have given Argentina a stock of beef cattle of a very high degree of excellence.

(II) THE EFFECT UPON THE INDUSTRY IN THE UNITED STATES.

(1) The tremendous growth of the Argentine export beef trade may be directly attributed to the decline in the surplus production of beef in the United States.

(2) The United States imported from Argentina from October, 1913, to September, 1914, inclusive, in round numbers 154,000,000 pounds of beef and meat products, of which 140,000,000 pounds were refrigerated beef.

(3) The Bureau of Animal Industry does not believe that beef producers in the United States need have serious immediate concern regarding competition from Argentina.

(4) A positive and beneficial effect on our beef cattle industry may be expected in the demand for breeding animals from Argentina. This demand should be stimulated in every legitimate way.

AUSTRALIA.

CONDITIONS OF PRODUCTION.

Much of the following matter is condensed from the article on Meat Production in Australia and New Zealand, by Dr. E. C. Joss, in the Yearbook of the Department of Agriculture for 1914.

The vast sloping highlands and plains country of the great interior of the continent, where the precipitation is sufficient to produce vegetation, is almost wholly devoted to live-stock grazing. The system mostly followed in the range country is to inclose in fence large holdings of land, which are either privately owned or are leased for a term of years from the Government. These ranches are known as cattle and sheep stations, and range in size from 5,000 to several million acres. Owing to the prevailing tropical and subtropical climate of Australia, open grazing on the indigenous grasses exists throughout the year in ordinary seasons. Practically no

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effort is made in these continuous grazing districts to provide feed for periods when grass becomes deficient on account of drought, and devastating sectional, or even general, droughts are of not infrequent occurrence. These dry periods often seriously affect the live-stock industry by causing considerable losses of lambs and calves, and, at times, enormous losses of cattle and sheep.

Following the droughts, however, the live-stock industry shows remarkable recuperative powers, and a few favorable seasons usually suffice for the replenishment of the depleted flocks and herds. Australia is poorly supplied with natural watercourses, so that much dependence must be placed on ponds constructed to impound surface water, or on bores or wells, which are often 3,000 feet or more in depth.

The production of swine is conducted usually as an adjunct to dairying.

MARKETING.

In the marketing of fat stock, buyers may go to the premises to make direct purchase of the producers, or the producers or owners may offer their holdings at public auction at sales yards located in various towns and districts. Such auction sales may be held at certain places on regular days each week, or announcements may be made in advertisements in the local newspapers. Live-stock sales are usually made at a lump price per head, or, in case of private sale, they may be made on the basis of dressed weight of the carcass at the meat works. The practice of weighing live stock at the time of sale is not followed, except occasionally in the purchase of swine.

The custom of slaughtering on farmers' account is followed to some extent. Under this method, the slaughtering concern undertakes to receive cattle and sheep, to slaughter, freeze, and market the carcass, and dispose of the skins, tallow, etc., for the farmer or owner, charging variable fees for the services rendered.

Although Australia has an area approximately equal to that of the main body of the United States, it has a little less than a total of 17,000 miles of railways, all owned by the Government. Railroad development has been confined mostly to the southeastern and eastern parts of the continent, thus leaving the vast interior and the western and northern parts of the country without connecting railroads. This means that sheep and cattle produced on the interior expanse of grazing lands must be driven on foot to distant railway points for shipment, or driven directly to the meat works, the latter being quite uniformly located on or near the Pacific Coast, between Adelaide on the south and Townsville, in Queensland, on the north. It is not uncommon in Australia to hear of large droves of fat cattle which have been driven overland from 500 to 1,000 miles or more,

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subsisting without serious loss of weight on native grasses along the way, to reach a railway shipping point or meat works. Likewise sheep from the far interior districts are often trailed hundreds of miles to reach markets.

In addition to the exportation of meat and meat products, Australia exports annually from 15,000,000 to 20,000,000 frozen rabbits and hares.

An especially notable feature is the rather general operation of municipal and state-owned abattoirs.

DISEASES.

Considerable losses of cattle have been caused by tick fever, which is similar to, if not identical with, the tick fever of the southern United States. Considerable losses of cattle are also sustained in the northern and northeastern parts of the continent from the prevalence of contagious pleuropneumonia. Anthrax and black leg are said to exist in some districts. Tuberculosis is also present in cattle and swine. Blowflies are particularly troublesome to sheep in some districts. Australia is said to be free from sheep and cattle scabies, glanders, foot-and-mouth disease, rinderpest, and dourine.

SLAUGHTERING TO THE LIMIT.

The entry of two Chicago companies into the slaughtering and meat-exporting business in Australia, in addition to strong English companies, and the relatively increasing demand for cattle as evidenced by the increase in price of beef in consumers' markets, seem to be affecting the Australian beef-producing industry as they are affecting the beef-producing industry in Argentina; that is to say, they seem to be causing a slaughter "to the limit." Increase of beef production, therefore, does not seem to be in prospect in Australia. Yet, large slaughtering companies are buying extensive areas of grazing land and stocking them with great herds of cattle, the effect of which, presumably, may be to make the beef supply more steady, but not necessarily larger.

BRAZIL.

A COUNTRY OF GREAT POTENTIAL PRODUCTION.

Consul General Lay reports that the absence of railway transportation has prevented the cattle business from developing in most districts of Brazil. Shipment has been made, therefore, only on a limited scale.

While there are no statistics of the pastoral industry in Brazil it is estimated that there are 30,000,000 cattle in this country, 8,000,000 of which are in Rio Grande do Sul and 5,000,000 in Minas Geraes.

The cattle-raising industry in Brazil, although exploited in every State and finding propitious conditions in some of them, has for

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many years remained stationary and has even retrograded, except in Rio Grande do Sul, Minas Geraes, Sao Paulo, and Parana, whose Governments recently began a series of efforts to improve cattle breeds and render the industry profitable. Stock raising in the State of Sao Paulo has been developed, thanks both to individual efforts and to the Government. There has been a "station of selection" founded for national breeds, and especially for the breed Caracul which has given very good results. Companies have been formed to engage in the live-stock industry, some of them with a capital of millions of dollars.

A letter from Mr. Richard Walsh, published in the Breeders' Gazette of December 18, 1913, says that the Brazilian cow is quite a big-framed common cow, very much larger than our old-time Texas cow, and is well adapted to crossing with good blood, such as Herefords and Shorthorns.

A large cattle ranch was established several years ago in Brazil. Mr. Walsh writes that in February, 1913, this enterprise had acquired 10,000,000 acres of land and 85,000 cattle, and, by December of the same year, had increased the cattle to 225,000, and hoped to raise the number to 500,000.

In the spring of 1915, London beef merchants were handling the first shipment of chilled beef from Brazil, the quantity being 1,060 quarters received from a frigorifico at Sao Paulo.

In consequence of rising land prices in Argentina, cattle ranchmen have been turning toward southern and southeastern Brazil for extension of beef production.

The cattle industry has heretofore been greatly handicapped by disease, but some of the State governments are taking practical steps to suppress disease and to aid ranchmen to do so.

Sheep raising is carried on only in a small degree.

EXPORTS AND IMPORTS.

The foreign trade record of Brazil in live meat animals and meat and meat products has been compiled as far back as 1903. Substantially no animals have been exported.

The meat exports range from 1,100,000 pounds in 1903, to 3,000,000 pounds in 1910. Subsequent to that year, the decline was to 2,000,000 pounds in 1911 and 1,100,000 pounds in 1912.

These exports are mostly beef and beef products, jerked beef being prominent, and also preserved tongues and meat extract. Considerable lard appears in the exports for several years.

On the other hand, Brazil has imported an immensely greater quantity of meat than it has exported, but the quantity has rapidly declined. In 1903, the imports of meat and meat products amounted

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to 123,000,000 pounds; in 1910, 80,000,000 pounds; and in 1912, 57,000,000 pounds. By far the most prominent class of imports is jerked beef, compared with which the exports are inconsequential. Considerable amounts of tallow and grease, bacon, hams, and lard are among the imports.

BRITISH SOUTH AFRICA.

Under the improved conditions of recent years, great progress has been made in the pastoral industry. The number of cattle in the Union of South Africa increased from about 3,500,000 at the time of the census of 1904, to 5,797,000 in 1911, an increase of 66 per cent. In spite of a decrease of 31 per cent in Natal, where East Coast fever had not yet been brought under control, the number of sheep had almost doubled within the same seven years.

RAINFALL.

Speaking broadly, it may be said that out of the 1,244,159 square miles of British South Africa, appropximately 850,000 square miles have an average annual rainfall of 15 inches and upwards; but by far the greater part of this area is a region of summer rains, in a large part of which the half year including the winter months is practically rainless. The streams, moreover, are very unevenly fed, owing largely to a scarcity of timber in most of the region south of the Zambezi. Rhodesia, however, is a fairly well-watered country. While 15 inches of rain annually would be ample for the growth of crops, if well distributed throughout the growing season, and while on the same condition many crops would thrive on half of that quantity, it is, nevertheless, true that, in a large part of British South Africa, irrigation is desirable during the dry season even where the average rainfall is much in excess of 15 inches yearly.

CARRYING POWER OF THE LAND.

In the past, the stock farms have generally comprised thousands of acres of land, and it was quite common to have two farms, one on the uplands for summer, and one at a lower altitude, to which the stock could be driven for winter. The grasses of the veldt, or the drought-resisting shrubs, bushes, etc., which serve in their stead where grass can not grow, have been mainly relied on for feed; but the tendency now is toward smaller farms, compacter settlements, and increasing dependence on cultivated forage crops, such as alfalfa grass, roots, etc., to supplement the wild herbage and boscage, of which, in the more arid sections, it sometimes takes 10 to 12 acres to support 1 sheep, and at least five times as many for every head of cattle.

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In an article on South Africa as a sheep country, published in the Agricultural Journal of the Union of South Africa for November, 1913, many districts of Cape Province are mentioned in which it requires from 3 to 8½ acres of land to support a sheep. Districts in the more humid section are named, in which from 1 to 3 sheep can be kept on about 2 acres. For the eastern parts of Orange Free State and Transvaal, the estimate given is 2 or 3 sheep per 2 acres, and for the western parts, 1 sheep per 2 acres in the former, and 2 in the latter Province.

Mr. W. Oosterlaak, dairy instructor in the Orange Free State, estimates that on an average for that Province in 1913, each head of small stock requires 1½ acres and each head of large stock 7½ acres, if dependent on the wild produce of the veldt. But Sir Percy Fitzpatrick gives the results of successful experiments with cultivated grasses adapted to dry farming districts, in which he had pastured during the three driest months of the year over twenty times as many sheep as could have been kept through the same season on an equal area of uncultivated veldt.

MAIZE.

The climate of a large part of South Africa is peculiarly well suited to the easy production of enormous quantities of maize of exceptionally good quality. The rainfall is ample on a vast area, if the soil is cultivated properly. The possible planting season lasts for two months, as compared with the maximum limit of 18 days in some of the maize-growing States of North America.

DISEASES.

The occasional prevalence of epizootic diseases and the diseases conveyed from one animal to another by blood-sucking insects, have militated against the success of the pastoral industry. Of the former class, rinderpest, by which as lately as the mid-nineties of the last century, extensive regions were swept almost bare of cattle, is now so well under control as to have lost its terrors for the stock breeders. Of the latter class, East Coast fever, which kills about 95 per cent of the animals affected by it, is successfully combatted by dipping cattle at short intervals in a solution that destroys the tick by which the disease is carried. The natives generally and many white farmers are less attentive than they should be to the use of this antidote, but the difficulty is being met by making dipping compulsory within affected areas. Various other diseases affecting cattle, sheep, and goats are also giving way before the advance of science and the sanitary legislation based on its teachings; and, with the destruction of the big game immune to the tsetse-fly disease, on the blood of which animals the fly chiefly subsists, the area infested by

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that insect has been so far diminished that domestic animals in British South Africa are no longer exposed to the disease, except in a small part of Zululand and some parts of Rhodesia and Nyasaland.

RECENT PROGRESS.

Pedigreed stock for the improvement of breeds has been imported in large numbers, especially since the early part of 1913, when a steamship company, under a contract with the Government, began transporting such stock free of charge.

In spite of years of severe drought, there are signs of progress which indicate increased production of meats. Far better care is given to live stock than was formerly given. The fencing in of pastures and the provision of water so that animals can drink at will, are being strongly urged on the attention of farmers. Alfalfa, we are told, "has literally revolutionized the whole system of agriculture and stock raising in the eastern and midland districts" of Cape Province, and irrigation works are being constructed in many localities, by which the cultivation of alfalfa and other crops will be largely extended. The use of labor-saving machinery on farms is rapidly extending, as also is the area under cultivation, and improved methods of farming are said to be very noticeable. All this means less reliance on the veldt for the support of live stock, and an increase in the number that can be maintained.

Men who are concerned with cattle production in the United States on a large scale have established a great enterprise for the same purpose in Rhodesia. They have obtained control of 4,000,000 acres of ranching land, and, by the spring of 1915, they had acquired 30,000 cattle. The European war prevented the buying of a larger number.

FOREIGN TRADE.

The exports of live-meat animals from British South Africa have been very few, and the exports of meat and meat products amounted only to 356,000 pounds in 1911, although this amount had grown from 15,000 pounds in 1906. These exports were mostly beef and tallow.

On the other hand, the imports of meat and meat products, which were as large as 264,000,000 pounds in 1903, rapidly declined to 35,000,000 pounds in 1913. The imports were largely of beef and beef products, of mutton to an appreciable extent, and of pork and pork products considerably. It is evident that British South Africa is approaching the time when it will cease to be a meat-deficiency country.

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CANADA.

DECLINING MEAT ANIMALS.

As has already appeared in the consideration of the number of meat animals in Canada, the production of meat in very recent years has declined. The Canadian Commission on Conservation reported in September, 1914, that "the war in Europe and the consequent demand for increased exports of meats finds Canada in a very much denuded condition as regards live stock. As a result of the removal of the American tariff a healthy export trade developed to the south. In some districts in eastern Canada nearly everything has been shipped out of the country except dairy cows. This export trade, together with farmers slaughtering their calves for veal, can have but one result to Canada, namely, a greater scarcity of meat than at present exists or would exist in a normal market."

RANGE INDUSTRY RAPIDLY PASSING.

The Canadian West is now experiencing the same change in cattle-raising methods as has already taken place in much of the country south of the line formerly devoted to ranching purposes, says the Hon. J. J. Rutherford, veterinary director general and live-stock commissioner of Canada. The ranching industry in Canada, continues Commissioner Rutherford, is rapidly passing. In Saskatchewan and Alberta it is only a matter of time until even the districts still regarded as unfit for general agriculture will, through modern methods of dry farming or by means of irrigation, be brought under cultivation. In the Peace River country ranching may persist for a time, but there, as elsewhere on the continent, the settler will soon be its undoing and the cowboy will disappear.

Under ranching conditions 20 acres is the usual allowance for each head of cattle, while the losses from exposure, from lack of food, and from wild animals constitute a heavy drain on the herd.

There is still much open grazing land available in Saskatchewan and Alberta, and many settlers let their cattle run at large during the summer, thus, for the present, combining ranching with farming. As time goes on and the land becomes more generally taken for farming this condition will disappear, as it has already done in many districts in Manitoba as well as in the newer west, and the farmer will have to depend for his feed on the output of his own acres.

CHILE.

UNPROMISING FUTURE.

According to Consul Winslow stock raising in Chile does not seem to be keeping pace with the general development of the country, owing largely to the fact that better use can be made of the land,

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since beef cattle can be brought in from Argentina cheaply. Then the ravages of tuberculosis, carbuncles, fever, etc., and the large number of deaths during droughts in unirrigated sections of the country, tend to make the business unprofitable.

Chile has over 23,000,000 acres suitable for cultivation, and, of this area, 1,400,000 acres are seeded, 1,400,000 acres are in tame pastures, and 800,000 acres are devoted to tame hay, mostly alfalfa. About 20 per cent of the uncultivated portion of the country (164,000,000 acres) is suitable for grazing, and most of this for only a portion of the year.

The Territory of Magallanes embraces approximately one-fifth of the area of all Chile, and it is better adapted to sheep than to cattle, so that there are over 25 sheep per square mile in this Territory and only 1 head of cattle to each 2 square miles. There is little prospect that the cattle holdings in this Territory will be materially increased in the near future.

It would seem that, with favorable climate and abundant grazing lands, at least sufficient cattle should be raised to supply the home markets. It could doubtless be done and more, too, if provision were made for feeding during the dry part of some seasons and during the winter months in some sections of the country. It seems to be the custom to let the cattle shift for themselves, with the result that many die and others become so weak that tuberculosis and carbuncles work havoc year after year. It is estimated that 30 per cent of the cattle of the country die of contagious diseases, and there has been no organized effort as yet to improve these conditions.

COLOMBIA.

SHOULD BE LARGE PRODUCER OF CATTLE.

The prediction has been made that Colombia will eventually utilize an immense pasturage area for the production of cattle. Already the cattle industry is probably Colombia's most important agricultural pursuit. Until very recently this country exported large numbers of cattle to Cuba and Panama, and this foreign trade, together with increasing local consumption of beef, so reduced the existing stock that all exports of cattle ceased and cattle were imported from Venezuela in 1914.

In all the northern coastal region, reports Consul Starrett, the lowlands are covered with grass all the year round, and the higher lands are green for most of the year, with the exception of January, February, and March, which are the driest months of the season. These "llanos" are covered with Para and Guinea grasses, and the lands used for grazing are said to last for many years, with an occasional cleaning and burning and a few months' rest during the rainy season. It is stated that 1½ acres will easily support one animal all the year round.

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The cattle now produced in Colombia are not large and average only from 700 to 800 pounds. It takes from five to six years for an animal to reach maturity. The percentage of calves that live is said to be high. Nearly all the large cities of the country constitute the several markets for cattle. There are at present no packing houses or refrigerating plants.

DENMARK.

DAIRYING AND BACON PRODUCTION.

Attention is called to this country on account of the enormous national surplus of bacon, and not with the purpose of describing the conditions and means of its production. It will be remembered that by means of large importations of feedingstuffs, an important dairying industry is maintained, with a butter product of high excellence and enough to afford a large export. This butter is made in cooperative creameries, and in consequence of these creameries hogs are kept to consume the skim milk. These hogs largely afford the export bacon, and this is made under uniform conditions by cooperative bacon companies.

There is a very instructive dovetailing of bacon making into butter making, and the success of both of these industries in Denmark appears to be founded on the cooperation of producers; but cooperation does not tell the whole story. Numerous elements leading to perfection of product have grown into both of these undertakings.

MADAGASCAR.

RECENT RAPID GROWTH OF MEAT PRODUCTION.

This large island has already been mentioned as possessing a large number of cattle, and attention is again directed to it, this time on account of the rapidly increasing exports of beef and pork and their products. The cattle of this island are of the Cebu race, and, therefore, are small, but they are hardy and produce a meat suitable for canning and for making meat extract.

From Madagascar in 1911 were exported 5,000,000 pounds of meat and meat products, mainly the latter. In 1910 the exports were 3,300,000 pounds; in 1909, 673,000 pounds; in 1908, 257,000 pounds; in 1907, 85,000 pounds; and, in 1903, 21,000 pounds.

This enormous rate of increase in exports was caused mainly by exports of tallow, of lard, of hams and other salted pork, and of canned meat.

The foreign demand for the beef of Madagascar began with the demand for live cattle in neighboring islands in the Indian Ocean, and in South Africa at the time of the Boer war. In the opinion of

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observers, it is expected that the export trade of this island in beef and pork and their products will increase along present lines.

MEXICO.

DEPLETION OF HERDS OF CATTLE.

No estimate of the number of cattle in Mexico has been found since the census of 1902, when 5,142,000 cattle were enumerated. One of the effects of the long-continued war in Mexico has, perhaps, been the diminution of its cattle, which formerly amounted to many millions of head on the vast plains of the plateau. The largest herds of cattle in Mexico were those of the northern States, the States north of San Luis Potosi, Zacatecas, and Tepic. Great numbers of these cattle have been driven across the boundary line between Mexico and the United States and have been sold to buyers in the United States. For three years previous to the fiscal year 1915, Mexico has contributed annually a supply of cattle to this country far greater than normally, and the cattle buyers of Texas, New Mexico, and Arizona have secured large numbers.

EXCELLENT RANGES.

Suitability of the northern States of Mexico for cattle production is described by a ranchman from Utah, who developed a large cattle ranch in Chihuahua. He writes to the Breeders, Gazette in June, 1911, that the greater part of the area of Mexico is above the tick line and all the plateaus leading to the Sierra Madre Mountains are ideal for cattle-breeding purposes. Only the river bottoms and the coast country produce the bane of the cattle industry, the tick. The whole country grows Para grass in profusion. It is a marvelous feed, equal to the bunch grass of Montana, succulent and highly nutritious. The States of Sonora, Coahuila, Durango, Sinaloa, and Chihuahua not only produce this feed in great quantities, but possess an excellent climate. Calves may come at any season of the year and encounter no risk.

It must not be presumed that no handicap exists, continues this cattle raiser. The northwest range country has a severe winter, while Mexico's greatest obstacle to cattle raising is drought. But this can be obviated by constructing dams and storing the water that falls during the rainy season. The present practice, even on the best ranches, is to let cattle wander anywhere from 10 to 15 miles for water. The impression is not conveyed that northern Mexico is in a position to flood the United States markets with cattle.

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SWINE.

Extensive portions of Mexico are favored in the production of swine. Consul Edwards, reporting for the State of Guerrero and portions of the States of Mexico and Michoacan in January, 1913, states that hogs are extensively raised and thrive exceedingly well on the wild fruits which grow abundantly everywhere. Oil cake, corn, pumpkins, peanuts, sweet potatoes, sorghum, sugar cane, and other classes of feed can be secured cheaply. The peanuts need not be dug, but keep well in the ground from October until May, when the rains begin. The hogs are then turned in and a cheap food is secured from the moist and softened earth. Diseases among hogs are rare.

IMPORTS.

Mexico has been importing meat and meat products within the range of 25,000,000 pounds to 33,000,000 pounds from 1906 to 1912. These commodities have mainly been lard, preserved meat, and a considerable quantity of stearin.

NEW ZEALAND.

PREEMINENT SHEEP AND LAMB PRODUCTION.

Some of the following matter has been condensed from Dr. Joss's article in the Yearbook of the Department of Agriculture for 1914, concerning Meat Production in Australia and New Zealand.

New Zealand consists mainly of two islands, each approximately the size of Iowa, and situated about 1,200 miles east and south of Australia. Sheep raising is preeminent. Much attention has been given to the breeding of sheep for meat production, with the result that New Zealand mutton and lamb sell for high prices in London.

The Government of New Zealand, recognizing the natural resources available for pastoral pursuits, has lent considerable encouragement and aid in developing the live-stock industry, by fostering the raising of sheep and dairying cattle, by searching out and opening up new markets, and by granting subsidies to steamship companies. Sheep farming on a moderate scale is a leading agricultural pursuit; that is, small or large flocks of sheep are raised on a majority of the farms, on which the pastures are supplemented to a large degree by root crops, kale, rape, etc. The practice is quite common to finish fat lambs for market on succulent field crops, with the result that prime carcasses for export are produced.

COOPERATIVE AND PUBLIC ABATTOIRS.

The marketing of fat stock is conducted along much the same general lines as in Australia. The custom of slaughtering on farmers' account in public abattoirs is more common than in Australia. Sev-

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eral of the large meat-export works in New Zealand are owned and operated by cooperative associations of farmers or stock owners, by which plan such profits as may accrue in the conduct of the associations' business, are returned directly to the members whose animals were slaughtered and marketed by the works.

The people of New Zealand have been especially concerned with the enactment of laws dealing with municipal-owned slaughterhouses. A statute, passed a few years ago, provides that when a municipality contains a population of 2,000, it shall, within a specified time, establish an abattoir for public use, wherein all local slaughtering shall be conducted. It is also provided, among other things, that governmental inspection shall be maintained in all such establishmei ts.

The apparent inadequacy of the present railways precludes practically, if such were desirable, the establishment of large central livestock markets with associated slaughtering works. Instead, meat-export slaughtering works, usually one or two in each district, are located throughout the entire length of the eastern coast of both islands. The supplies of sheep and cattle for these meat works are usually obtained in the territory contiguous to the meat works located in that district. The refrigerator ships call at the various ports where meat works are located to take on consignments.

EXPORTS.

The beef trade of New Zealand is small compared with that of Australia. It is remarkable, however, that, whereas New Zealand has only about one-fourth as many sheep as Australia, the exports of mutton and lamb are, in most years, more than twice as large as those of the latter country. This trade, in fact, is now so highly developed in New Zealand that the number of carcasses annually shipped to England and other countries represents fully 25 per cent of the entire flocks of the islands.

New Zealand exports annually from 2,000,000 to 4,000,000 frozen rabbits and hares.

ANIMAL DISEASES.

Excepting animal tuberculosis, New Zealand is remarkably free from many of the communicable diseases that hamper or threaten the production of live stock in most other countries. Of these diseases, the following are said not to exist at the present time: Tick fever, anthrax, cattle scabies, sheep scabies, glanders, hog cholera, contagious pleuropneumonia, worm nodules, rabies, dourine, rinderpest, and foot-and-mouth disease.

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The live stock and meat division of the Department of Agriculture exercises sanitary control of live stock by a system of farm-to-farm inspection, whereby technical and practical advice is given to the farmer, and Government control assumed if certain infectious or contagious diseases are found to exist.

ENCROACHMENT OF DAIRYING.

In the opinion of the Pastoral Review, it can hardly be said that there is much scope for increased production of sheep in New Zealand. With the development of easy communication to the back country, it is much more likely that in such a well-watered country with estate subdivision so active, dairying will, to a considerable extent, displace sheep. The prevailing prices of land, it is asserted, support this theory. The larger estates of the better kinds of land are undergoing subdivision.

PARAGUAY.

BREEDS OF CATTLE.

Cattle raising at the present time as carried on in Paraguay requires few hands, and is not easily affected by dearth of labor, and for this reason it is a practicable industry. The Criollo, or original native-grown cattle, born from the stock brought over at the time of the colonization by the Spaniards, predominates, but this breed, especially in the north, is mixed with the Cebu, which entered the country from Brazil, and now affects probably more than 60 per cent of the cattle north of Asuncion. Some foreign breeders have introduced Durham and Shorthorn bulls.

Excellent grazing land is abundant in the Chaco region, and on most of the estates or camps the animals are left to roam over vast areas. The animals of partial Cebu origin, although superior to the Criollo, are of poor type, poorly built, and yield a relatively small quantity of salable meat, which, as regards export business, is suitable only for jerked beef and meat extract, but these animals are hardy and are eminently suited to the class of camp on which they run half wild. The imported cattle, it is stated in a British consular report for 1912, are very susceptible to splenetic or tick fever.

PASTURES.

The camps or estates are for the most part in an unimproved condition and do not generally carry more than 500 head of cattle to the square league (about 7¼ square miles, or 4,633 acres), although some may carry 1,000 head where the proportion of thicket and swamp is low. There is difficulty in raising alfalfa. It yields a fair crop, but does not root as well as in Argentina, with the result that where cattle graze on it they uproot it and destroy the plant.

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The best grazing land is found in the north, in Misiones and Concepcion, and good land is also found in Chaco. While good pasturage, however, is found everywhere, it must not be overlooked that the cattle ranchman or farmer has two very serious difficulties to contend with in drought and locusts.

Much of the country is naturally fitted for the fattening of cattle, since the pasturage is green the year round and water is plentiful. The season in which they become fat and fit for slaughter is about two months earlier than in Argentina and Uruguay. In the Chaco Territory a square league will support about 1,000 cattle, and two herds of that number can be fattened on it yearly.

By means of the Paraguay and Parana Rivers, the country is in direct communication with the Atlantic Ocean, since they are navigable at all times of the year to vessels of 12-foot draft.

Cattlemen in the United States have formed a large cattle company in Paraguay, where they have bought 5,000,000 acres. There are jerked beef establishments and a factory for making beef extract and for canning meat, but as yet no frigorifico has been established.

SHEEP.

In former years there were a good many flocks of sheep in Paraguay, but they were not a source of much profit. The summer temperature is too high, the fodder is too coarse, and the brambles are too thick to suit them, and it is difficult to maintain them in a thriving condition.

EXPORTS.

Paraguay exported 7,000,000 pounds of meat and meat products, almost entirely jerked beef, in 1903, but has not equaled this quantity in any subsequent year to 1912. The exports were as low as 1,400,000 pounds in 1909, but they increased to 4,000,000 pounds in 1912.

URUGUAY.

LIVE STOCK INDUSTRY.

In the following matter concerning Uruguay are some extracts from an article by Mr. Albert Hale in a Bulletin of the Pan American Union, published in 1914.

The land in Uruguay is gently rolling and it is difficult to find any large part of it unprovided with a bountiful water supply. The soil is deep and arable, and where not cultivated it supplies of itself a good pasture for the herds of cattle and sheep grazing on it. The climate is mild, with no extremes of heat or cold, although the winters may have frost and the summers the steady sun that remind one of mid-England in August.

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While the tendency in Uruguay is steadily in the direction of improvement along all branches of cattle raising, there is also noticeable a desire to increase the agricultural as compared with pastoral activities of the country. Immigration plays its part in this development. Later settlers give more attention to small farming, so that, as the cattle industry increases the supply of grain and fodder keeps more evenly adjusted to it.

It is expected, however, that the live-stock industry will continue to be the chief source of this country's commerce for many years to come. Of the total area of the Republic, about 46,000,000 acres, 37,500,000 acres are given over to pasture and somewhat over 2,000,000 acres to crops.

Mr. Hale quotes a recent estimate of the number of animals now on this immense pasturage area at 8,200,000 cattle, 27,000,000 sheep, over 500,000 hogs, and nearly 600,000 horses, mules, and asses.

JERKED AND REFRIGERATED BEEF.

For a long time the preparation of jerked beef has been a leading industry in Uruguay. Although some of this beef is consumed within the country, the greater portion is exported to Brazil, Cuba, Porto Rico, and elsewhere, where it is much liked by the people, and, in many cases, preferred to fresh meats.

There are two large slaughtering and meat exporting frigorificos at Montevideo.

GRASSES.

In the report of the tariff board on wool, the special agent who visited Uruguay states that the whole country is covered with native grasses of a perennial character. There are many species represented. Some are coarse and unfit for sheep, but are liked by cattle. Others are short fine grass, very good indeed. There are also in many parts good crops of wild native clovers. The burr clovers and the very fattening alfilaria are seen to a greater or less extent. In native grasses Uruguay is more richly supplied than is Argentina, which is naturally covered with very coarse and hard grasses. Most grasses are annual in Argentina, but in Uruguay they are perennial and the plow injures the pastures.

CLIMATE.

The winter climate of Uruguay is delightful, if one has a fireside where he can retreat at nightfall. The days are usually sunny and cool, and more or less bloom and greenness are seen throughout the winter. If the soil is moist, the grass will be green, although it may be unable to make growth because of the cold nights and cool days.

A difficulty in the way of sheep industry is drought. There is no certain climate on the coast south of Brazil. Rains may be abun-

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dant and seasons normal, then all goes well; at other times, rains will be withheld for long periods. There will be a series of years of drought, not of complete absence of rain, but of light rainfall. The result is that at last every vestige of grass is eaten, even to the coarse woody grass, and cattle die on every hand. Sheep live longer than cattle in such circumstances, but many lambs and old ewes will be lost.

SHEEP.

The sheep are scattered all over the pastures unaccompanied by any herders because there are no wild animals to destroy sheep; consequently, there is little labor cost in feeding them.

Sheep scab is everywhere present, and it is estimated to be on about 30 per cent of the sheep.

SUMMARY OF 13 COUNTRIES.

INSISTENT DEMANDS BY GREAT SLAUGHTERING PLANTS.

Some generalities seem to be justified by the information that has been obtained for the foregoing 13 countries. Most of them are now meat-surplus countries, and it is possible for the remainder to become so.

When great slaughtering and refrigerating plants are established, business necessity requires that they shall be operated nearly, if not fully, to their capacity. This means a daily and incessant demand for animals to slaughter. If they are not forthcoming, up goes the price, and this price soon finds the producer. It entices him to sell, and to sell close to the bare maintenance of his herds and flocks, perhaps to oversell even his breeding animals. Such has been the effect in Argentina, Australia, and Canada.

The United States, by far the leading meat-producing and consuming country, failed to maintain its per capita meat production, with immediate effect on prices at home and abroad. By means of the mechanism of slaughtering and meat transportation in other prominent countries, prevention of increase of cattle, or perhaps overmarketing of cattle, has resulted.

INCREASED PRODUCTION POSSIBLE.

Gradually and at some indefinite future time southern Brazil may rival Argentina; Mexico should eventually produce millions of cattle yearly; Argentina and Uruguay may, if they will, greatly increase their beef production, and Paraguay may follow; weather and water conditions in Australia present formidable obstacles to further extension of cattle and sheep production, but to some extent they may be gradually overcome; Rhodesia has an extensive range area that will yet produce great numbers of cattle, and other subdivisions of British

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South Africa should make their contribution; while sheep may undergo a change from almost exclusive wool production to a production of mutton and lamb as well, or perhaps to the subordination of wool. Vast range areas are in reserve in the countries mentioned, and in Colombia and Chile, not only for better utilization, but for extension of meat production. In Canada, it is increasingly a problem of farm management.

An extraordinary combination of circumstances and factors in all countries, or even in a considerable number of them, rapidly to increase the production of beef, or mutton, or both, is not to be expected; rather, as a net result, gradual growth and extension, which may or may not equal the rate of increase of the meat-eating population.

SOME CONDITIONS AND PROBLEMS IN THE UNITED STATES.

LOCAL ORIGIN OF CATTLE FOR SLAUGHTER AND FEEDING.

From correspondents of the Bureau of Crop Estimates some items of information concerning the local origin of beef cattle have been obtained from all parts of the country, and these have been consolidated for weighted averages for the United States.

According to the views of these correspondents, 44.6 per cent of the slaughtered cattle are born in the county where slaughtered, and 55.4 per cent are shipped into the county to be slaughtered.

It seems now to be regarded as of increasing importance that beef cattle should be raised where they are finished for market. With regard to this, the correspondents reported that 79.7 per cent of the cattle fattened are born in the county, and that 20.3 per cent are shipped into the county for this purpose.

AGE OF BEEF CATTLE.

The average age at which beef cattle are sold is placed at 2.6 years. In no State is the average regarded as being greater than 3.6 years, and this State is Florida, and in no State as being below 2.1 years, and this State is Michigan.

YEARLY MARKETINGS OF MEAT ANIMALS.

[Table 29.]

Reports of public stock yards for many years have contained statistics of the marketings of live stock at Chicago, Kansas City, Omaha, St. Louis, Sioux City, St. Joseph, and St. Paul.

The receipts of cattle at these markets increased from 7,179,000 in 1900 to 9,591,000 in 1907, after which there was a decline, and a rapid one after 1910, to 7,182,000 cattle in 1914.

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There was a kiting of calf marketing, which increased from 518,000 in 1902 to 981,000 in 1910, with a decline, which was rapid after 1912, to 664,000 in 1914. Omaha and St. Louis are not included.

The receipts of hogs at the seven markets mentioned have been somewhat irregular; yet nevertheless they were about the same in 1914 as in 1900, or about 18,000,000. The highest number for any year was 22,864,000 in 1908, and the lowest number 14,853,000 in 1910. From 1911 to 1913 about 20,000,000 hogs were marketed annually at these seven cities. The ravages of hog cholera reduced the marketings somewhat in 1914.

Sheep marketings have on the whole steadily increased in these seven cities. The number of sheep received in 1900 was 7,100,000; in 1902, 9,200,000; in 1905, 10,600,000; in 1910, 12,400,000; in 1911, 13,500,000; and in 1913, 14,000,000. The number declined to 13,300,000 in 1914, but still the number was greater than for any year previous to 1911.

YEARLY SLAUGHTERINGS AT PRINCIPAL PLACES.

[Table 30.]

According to commercial estimates the number of cattle, except calves, slaughtered in Chicago, Kansas City, St. Louis, and Omaha, added to the number received at Boston, New York, Philadelphia, and Baltimore for slaughter, reached the total of 2,300,000 in 1884, 3,400,000 in 1888, 4,700,000 in 1890, 5,100,000 in 1892, followed by a decline to 1898, but in 1899 there was a sudden recovery, on account of overmarketing of range stock, to 5,200,000, followed by increase to 5,600,000 in 1901 and 6,100,000 in 1906. Thereafter a decline followed, which in the seven cities reduced the number of cattle slaughtered at the markets above mentioned to 5,000,000 in 1913, a number which was exceeded as far back as 1892, except in 1895–1898.

The sheep and lambs slaughtered increased on the whole steadily from 4,300,000 in 1884 to 5,300,000 in 1891, 6,600,000 in 1893, 7,600,000 in 1894, 8,300,000 in 1895, with subsequent depression to 1900. In 1901 the number greatly increased and reached 8,800,000 sheep and lambs; in 1902, 9,300,000; in 1910, 10,100,000; and in 1911, 11,500,000. The immense increase in 1912 brought the number up to 15,500,000, followed by a great decline to 12,300,000 in 1913.

The swine packed in the West and the East, together with receipts at eastern markets, as reported in trade papers, amounted to 18,900,000 in 1899, and the number increased to 24,000,000 the next year. This number was not exceeded until 1897, when the total was 26,100,000. In the next year it jumped to 29,800,000, and 30,400,000 was

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reached in 1901. In 1905 the number was 31,300,000; in 1907, 34,400,000; in 1908, 35,200,000; in 1911, 36,100,000; followed by decline to 31,700,000 in 1912, after which there was some recovery to 33,700,000 in 1913.

INCREASE OF RETAIL OVER WHOLESALE PRICE.

By direction of the Secretary of Agriculture, the Bureau of Crop Estimates in 1909 ascertained the difference between the wholesale price of a quarter, side, or carcass of beef paid by retailers and the aggregate amount received by the retailer for the identical quarter, side, or carcass. This investigation was conducted in 50 cities well distributed geographically throughout the United States, by inspectors of the Bureau of Animal Industry. In ascertaining the aggregate retail receipts for each quarter, side, or carcass, the weight of each distinctive cut was ascertained and the uniform price at which it was sold when further cut for the retail customer. All trimmings were accounted for.

In the case of every city, the wholesale price was the local one, usually with delivery by the wholesaler to the retailer.

As an average for the 50 cities, it was ascertained that the average wholesale price of fresh beef was 8.08 cents per pound, and that the average retail price was 10.99 cents per pound, or an increase of 38.1 per cent.

In the cities of the North Atlantic division of States the average wholesale price was 8.95 cents and the average retail price 11.62 cents per pound, or an increase of 31.4 per cent.

In the cities of the South Atlantic States the average wholesale price was 8.50 cents, average retail price 11.60 cents, or an increase of 37.9 per cent.

An average wholesale price of 7.69 cents was found in the cities of the North Central States, and this was increased to 10.47 cents at retail, a gain of 37.6 per cent.

For the cities of the South Central States, the wholesale price of 6.92 cents was increased to 10.53 cents at retail, with a gain of 53.6 per cent.

In the average for the cities of the Western States, including the Mountain and Pacific States, it appears that the wholesale price was 7.79 cents, the retail price 10.72 cents, and the gain 39.4 per cent.

It was found that the percentage of gain was usually lower in the larger cities than in the smaller ones, and higher in the case of beef that was cheap at wholesale than of high-priced beef.

The rule seemed to be quite general that low-priced beef was marked up perhaps twice as much relatively as high-priced beef. In other

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words, perhaps it is a safe inference that the poorer people paid nearly twice the gross profit that the more well-to-do people paid.

No other division of States stood as high in gross profits as the South Central States did, with 53.6 per cent. The cities with rates above this mean were Fort Smith, Ark., with 56.8 per cent; Mobile, Ala., 63.9 per cent; Nashville, Tenn., 62.7 per cent; Natchez, Miss., 56.4 per cent; and Shreveport, La., with 68 per cent.

ONE-YEAR TENANCIES.

The one-year farm-tenant systems of this country inhibit beef and mutton production, except to the extent that beef production may be carried on in a small way by feeding for a season without breeding.

In the North Central division of States, containing the corn belt, there were 2,233,000 farms in 1910, of which 29 per cent were operated by tenants. In the Western division of States, 14 per cent of the farms were operated by tenants in that year; in the North Atlantic division, 18 per cent; in the South Atlantic division, 46 per cent; and in the South Central division, 52 per cent. The average farm tenancy of the United States is 37 per cent. Beef and mutton breeding and production on these farms under the present systems of tenancy are clearly beyond the tenant's ability.

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TABLES.

TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years.*

ALGERIA.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1887	1,210,159				10,854,088			87,001	3,879,000
1891	1,233,051				8,869,671			81,106	4,124,732
1892	1,231,510				9,375,895			83,821	4,186,000
1893	1,193,915				9,502,046			86,010	4,247,000
1894	1,133,599				7,695,789			83,700	4,308,000
1895	1,121,246				7,891,979			84,068	4,368,000
1896	1,104,160				7,435,206			83,761	4,429,421
1897	1,095,262				7,716,652			87,029	4,491,000
1898	1,004,175				7,026,290			90,765	4,553,000
1899	1,045,102				7,523,763			88,085	4,615,000
1900	992,551				6,723,952			81,884	4,677,000
1901	1,035,104	401,734		633,370	8,053,758	3,679,798	4,373,960	81,174	4,739,331
1902	1,073,777	417,442		656,335	8,724,795	3,867,423	4,857,372	78,909	4,838,000
1903	1,082,204	434,127		648,077	8,958,537	4,011,992	4,946,545	86,747	4,936,000
1904	1,080,554	418,254		662,300	8,611,747	4,076,202	4,535,545	88,178	5,035,000
1905	1,066,404	421,044		645,360	9,062,636	3,994,714	5,067,922	91,267	5,133,000
1906	1,078,218	423,978		654,240	8,801,117	4,113,116	4,688,001	96,012	5,231,850
1907	1,081,734	425,501		656,233	9,314,515	4,323,944	4,990,571	97,587	5,298,000
1908	1,092,202	424,222		667,980	9,632,177	4,462,512	5,169,665	102,585	5,365,000
1909	1,100,586	421,537		679,049	9,066,916	4,347,264	4,719,652	110,700	5,431,000
1910	1,127,577	436,506		691,071	9,042,302	4,181,724	4,860,578	108,949	5,497,000
1911	1,113,952	440,406		673,546	8,528,610	3,925,739	4,602,871	110,012	5,563,328
1912	1,106,801				8,338,023			113,751	5,630,000

ARGENTINA.

1888 [1]	21,963,930				66,701,097			403,203	3,894,000
1895 [2]	21,701,526	1,800,799			74,379,562			652,766	3,954,911
1908 [3]	29,116,625	2,163,900	16,337,316	10,615,409	67,211,754	40,639,731	26,572,023	1,403,591	6,186,000
1909 [4]	27,824,509				65,082,201				6,485,000
1910 [4]	28,827,900				73,012,640				6,736,000
1911 [4]	28,786,168				80,401,486			2,900,000	7,100,000
1912 [4]	29,016,000								7,468,000
1913	28,500,000				80,000,000				7,836,000
1914	29,500,000				80,000,000			3,500,000	8,204,000

[1] Census.
[2] Census, May 10.
[3] Census, May 30.
[4] Dec. 31.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

ARGENTINA—Continued.

NUMBER OF CATTLE, BY CLASSES AND YEARS.

Class of cattle.	1888 (census).[1]	1895 (census, May 10).[2]	1908 (census, May 30).[3]	1909 (estimate, Dec. 31).[4]	1910 (estimate, Dec. 31).[4]	1911 (estimate, Dec. 31).[5]	1912 (estimate, Dec. 31).[6]
Natives	17,574,572	14,197,159	10,785,280	.....	.....	.....	.....
Grades	3,388,801	4,678,348	14,027,207	.....	.....	.....	.....
Purebreds and crossbreds	37,858	72,216	918,749	.....	.....	.....	.....
Milch cows	960,426	1,800,799	2,163,900	.....	.....	.....	.....
Work oxen		963,004	1,221,489	.....	.....	.....	.....
Total	21,961,657	21,701,526	29,116,625	27,824,509	28,837,900	28,786,168	29,016,000

DESCRIPTION OF CATTLE, CENSUS OF MAY 30, 1908.

Class of cattle.	Total.	Calves, male.	Calves, female.	Bulls.	Steers.	Cows for breeding.	Milch cows.	Work oxen.
Natives	13,071,282	1,668,165	1,510,930	517,562	1,533,655	5,554,968	1,236,621	1,049,381
Grades	15,060,446	2,009,691	1,381,339	276,052	3,027,143	6,832,982	866,579	166,660
Purebreds	112,786	13,241	12,434	15,424	15,189	50,132	5,504	862
Crossbreds	872,111	129,346	106,709	77,412	111,040	387,822	55,196	4,586
Total	29,116,625	3,820,443	3,511,412	886,450	4,687,027	12,825,904	2,163,900	1,221,489

NUMBER OF ANIMALS, BY YEARS AND PROVINCES.

Province, Territory, and year.	Cattle.	Sheep.	Swine.
Capital Federal:			
1909	16,322	8,540	.....
1910	14,397	300	.....
1911	14,338	1,222	.....
Buenos Aires:			
1888	8,680,483	51,557,750	208,088
1895	7,745,996	52,630,451	248,720
1908	10,351,235	34,604,972	711,241
1909	8,195,141	27,051,539	.....
1910	7,490,458	26,654,322	.....
1911	7,045,523	28,934,475	.....
Santa Fe:			
1888	2,328,443	2,977,382	58,530
1895	2,315,007	1,988,777	82,366
1908	3,413,446	989,406	208,462
1909	3,694,769	1,131,337	.....
1910	3,851,515	1,370,692	.....
1911	4,055,624	1,612,799	.....
Cordoba:			
1888	2,110,523	2,355,030	22,253
1895	1,894,926	2,594,662	51,607
1908	2,639,480	1,992,110	131,043
1909	2,519,764	2,177,436	.....
1910	2,461,614	2,444,322	.....
1911	2,251,744	2,753,773	.....
Entre Rios:			
1888	4,120,068	4,901,123	23,523
1895	2,784,810	6,210,185	53,810
1908	3,145,639	7,005,469	81,109
1909	3,182,685	7,499,428	.....
1910	3,025,957	8,713,734	.....
1911	2,260,018	6,721,976	.....
Corrientes:			
1888	1,841,455	611,085	10,021
1895	2,893,256	1,405,101	24,676
1908	4,275,895	3,138,563	31,198
1909	4,152,118	3,619,072	.....
1910	4,582,572	4,658,054	.....
1911	5,030,396	5,937,432	.....
San Luis:			
1888	478,904	241,827	6,844
1895	479,964	552,977	6,534
1908	578,889	867,416	7,729
1909	786,684	1,059,347	.....
1910	991,254	1,285,483	.....
1911	861,831	1,566,326	.....
Santiago del Estero:			
1888	588,396	781,951	13,093
1895	591,302	423,229	38,501
1908	628,652	740,207	47,772
1909	734,810	956,560	.....
1910	894,123	1,264,817	.....
1911	1,121,374	1,344,024	.....
Mendoza:			
1888	180,009	122,298	6,552
1895	268,746	169,937	22,069
1908	329,998	290,123	25,551
1909	350,147	417,243	.....
1910	422,704	576,591	.....
1911	395,327	745,701	.....
San Juan:			
1888	54,539	62,672	3,625
1895	69,288	59,583	11,211

[1] The Animal Industry of Argentina, by Frank W. Bicknell, Bureau of Animal Industry, U. S. Department of Agriculture, Bul. 48, p. 57.
[2] Segundo Censo de la Republica Argentina, 1895, vol. 3, pp. 200, 204.
[3] Agricultural and Pastoral Census of the Nation, 1908: Stock-breeding, Vol. I, pp. 202, 310.
[4] La Argentina Agricola, 1911–1912, p. 105.
[5] Boletin Mensuel de Estadistica Agricola, December, 1912, p. 14.
[6] Boletin Mensuel de Estadistica Agricola, May, 1913, p. 6.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

ARGENTINA—Continued.

NUMBER OF ANIMALS, BY YEARS AND PROVINCES—Continued.

Province, Territory, and year.	Cattle.	Sheep.	Swine.
San Juan—Con.			
1908	81,917	96,820	7,310
1909	118,668	132,772	.....
1910	157,060	181,561	.....
1911	174,835	191,752	.....
La Rioja:			
1888	160,197	57,926	5,252
1895	246,750	72,812	8,887
1908	417,353	132,837	12,940
1909	460,759	169,792	.....
1910	554,083	227,802	.....
1911	600,582	234,587	.....
Catamarca:			
1888	239,834	152,438	10,962
1895	275,515	125,430	10,723
1908	268,158	154,329	12,053
1909	268,231	170,217	.....
1910	336,792	223,316	.....
1911	382,108	230,201	.....
Tucumán:			
1888	198,835	43,390	7,129
1895	426,869	99,114	31,272
1908	403,811	124,248	42,385
1909	394,560	170,214	.....
1910	543,857	219,166	.....
1911	653,458	234,591	.....
Salta:			
1888	164,944	164,414	7,194
1895	550,599	272,956	23,009
1908	559,997	336,626	27,584
1909	641,795	455,242	.....
1910	772,274	599,481	.....
1911	892,248	630,681	.....
Jujuy:			
1888	89,855	617,803	2,358
1895	129,355	664,797	10,971
1908	113,018	601,967	4,938
1909	142,693	797,489	.....
1910	171,789	1,022,629	.....
1911	172,387	1,128,321	.....
Pampa Central:			
1888	469,775	1,670,393	2,147
1895	530,162	5,295,177	3,326
1908	464,645	4,809,077	20,860
1909	444,072	5,019,890	.....
1910	474,942	5,525,386	.....
1911	399,460	5,751,856	.....
Misiones:			
1888	41,967	4,218	3,961
1895	70,259	6,251	8,809
1908	94,361	9,633	13,243
1909	116,807	14,396	.....
1910	137,963	17,075	.....
1911	154,328	24,761	.....
Formosa:			
1888	14,403	143	437
1895	41,424	2,439	826
1908	233,724	22,483	1,570
1909	260,835	30,304	.....
Formosa—Con.			
1910	311,850	36,404	.....
1911	359,139	46,397	.....
Chaco:			
1888	17,551	3,751	892
1895	83,952	7,671	5,332
1908	265,279	9,989	5,551
1909	347,473	15,844	.....
1910	441,375	21,099	.....
1911	562,412	25,052	.....
Los Andes:			
1908	905	54,138	23
1909	1,425	73,079	.....
1910	1,781	98,657	.....
1911	2,057	106,523	.....
Rio Negro:			
1888	77,434	287,940	864
1895	82,050	1,009,777	563
1908	279,459	4,724,844	3,332
1909	285,898	5,445,317	.....
1910	317,782	6,512,829	.....
1911	379,312	8,476,993	.....
Neuquen:			
1895	173,706	357,429	1,486
1908	193,728	672,957	4,748
1909	214,964	738,334	.....
1910	263,677	858,609	.....
1911	295,770	1,099,161	.....
Chubut:			
1895	29,944	47,306	1,138
1908	334,995	2,123,628	1,370
1909	424,858	2,948,596	.....
1910	546,491	3,897,633	.....
1911	651,511	5,091,132	.....
Santa Cruz:			
1895	10,551	369,264	7
1908	25,329	2,387,566	1,017
1909	33,793	3,245,184	.....
1910	49,062	4,392,791	.....
1911	55,442	4,946,677	.....
Tierra del Fuego:			
1888	148	282	33
1895	796	7,165	53
1908	11,851	1,342,351	562
1909	15,099	1,735,029	.....
1910	11,360	2,209,887	.....
1911	14,726	2,564,073	.....
Isla Martin Garcia:			
1909	134	.....	.....
1910	168	.....	.....
1911	218	.....	.....
Total Republic:			
1888	21,963,930	66,701,097	403,203
1895	21,701,526	74,379,562	652,766
1908	29,116,625	67,211,754	1,403,591
1909	27,824,509	65,082,201	.....
1910	28,827,900	73,012,640	.....
1911	28,786,168	80,401,486	.....

NOTE.—Some of the published figures for the States do not agree with the totals for the Republic.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

AUSTRALIA.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1890	10,299,913				97,881,221			891,138	3,151,355
1891	11,112,112				106,421,068			845,888	3,174,392
1892	11,602,072				103,272,068			803,256	3,254,000
1893	11,756,520				99,539,889			777,657	3,333,000
1894	12,311,617				100,411,461			856,588	3,412,000
1895	11,767,488				90,699,727			822,750	3,491,621
1896	11,496,382				90,615,847			801,433	3,546,000
1897	10,832,457				82,643,578			786,565	3,601,000
1898	10,313,958				79,237,002			866,800	3,656,000
1899	9,645,690				72,347,509			941,997	3,711,000
1900	8,640,225				70,602,995			950,349	3,765,339
1901	8,491,428	1,327,418			72,040,211			931,309	3,773,801
1902	7,062,742	1,230,911			53,068,347			777,289	3,839,000
1903	7,247,508	1,270,787			56,932,706			837,368	3,903,000
1904	7,840,520	1,499,804			65,823,918			1,062,703	3,968,000
1905	8,528,331	1,507,159			74,540,916			1,014,977	4,032,977
1906	9,349,409	1,766,494			83,687,655			813,569	4,111,000
1907	10,128,486	1,892,351			87,050,263			754,101	4,190,000
1908	10,547,679	1,839,398			87,043,266			695,691	4,268,000
1909	11,040,391	1,906,174			91,676,281			765,137	4,347,000
1910	11,744,714	2,064,599			92,047,015			1,025,850	4,425,083
1911	11,828,954	2,120,469			93,008,531			1,110,721	4,455,005
1912	11,577,259	2,086,885			83,263,696			845,255	4,495,000
1913	11,483,882	2,078,851	9,407,001		85,067,402			800,505	4,572,059

AUSTRIA-HUNGARY.

Austria:									
1890[1]	8,643,986	4,254,303		4,389,683	3,186,787			3,549,700	23,895,413
1900[1]	9,511,170	4,749,152		4,762,018	2,621,026			4,682,654	26,150,708
1902	9,025,257	4,593,955		4,431,302	2,802,346			4,365,095	26,663,000
1910[2]	9,160,009	4,901,886		4,258,123	2,428,101			6,432,080	28,571,934
Hungary (including Croatia and Slavonia):									
1884	5,592,873				11,180,841			5,554,130	16,325,000
1895	6,738,365				8,122,682			7,330,343	18,257,000
1904	6,816,327				8,211,420			5,440,000	19,922,000
1906	6,511,362				7,581,287			5,075,104	20,181,000
1907	6,806,781				8,113,907			5,533,615	20,339,000
1908	7,336,764				8,460,375			6,056,693	20,514,000
1909	7,152,568				7,904,634			5,489,946	20,699,000
1911	7,319,121				8,548,204			7,580,446	21,030,000

BELGIUM.

1895	1,420,976	765,006	419,597	236,373	285,722			1,163,133	6,331,000
1900	1,657,494	828,445	258,259	570,790				1,005,501	6,693,548
1901	1,646,320	834,025	252,734	559,561				1,015,322	6,766,000
1902	1,646,556	839,882	241,412	565,262				1,136,786	6,839,596
1903	1,720,150	853,323	250,944	615,883				1,183,406	6,912,620
1904	1,782,290	873,794	267,867	640,629				1,154,721	6,985,644
1905	1,788,328	889,126	270,480	628,723				1,046,519	7,058,668
1906	1,779,678	890,585	265,514	623,579				1,148,083	7,131,692
1907	1,817,689	899,482	270,580	647,627				1,279,462	7,204,716
1908	1,861,412	912,781	280,064	668,567				1,161,761	7,277,740
1909	1,856,833	920,534	278,358	657,941				1,116,500	7,350,764
1910	1,879,754				185,373			1,494,297	7,423,748
1911	1,812,191							1,229,428	7,490,411
1912	1,830,747	983,928						1,348,514	7,571,387
1913	1,894,484	936,800						1,412,293	7,651,000

[1] Not the sum of dairy cows and other cattle.

[2] Census.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

BELGIUM—Continued.

Year.	Number of cattle, by age periods.								Swine.	
	Total.		Under 6 months.		6 months and under 1 year.		1 year and under 2.		2 years and over.		Total.	Sows for breeding.
	Total.	Females.	Total.	Females.	Total.	Females.	Total.	Females.	Total.	Females.		
1900	1,657,494	1,334,288	137,610	87,595	227,603	159,989	354,771	258,259	937,510	828,445	1,005,501	122,098
1901	1,646,320	1,325,233	138,564	87,379	214,147	151,095	346,444	252,734	947,165	834,025	1,015,322	123,418
1902	1,646,556	1,331,103	145,126	91,144	223,636	158,665	330,801	241,412	946,993	839,882	1,136,786	138,902
1903	1,720,150	1,371,546	152,871	93,746	250,292	173,533	350,839	250,944	966,148	853,323	1,183,406	138,401
1904	1,782,290	1,420,171	156,361	96,587	260,542	181,923	376,307	267,867	989,080	873,794	1,154,721	132,404
1905	1,788,328	1,430,525	149,075	92,585	250,250	178,335	377,372	270,480	1,011,631	889,125	1,046,519	123,629
1906	1,779,678	1,428,678	154,469	95,577	248,528	177,002	364,247	265,514	1,012,434	890,585	1,148,083	141,399
1907	1,817,689	1,453,982	158,420	96,262	267,603	187,658	372,236	270,580	1,019,430	899,482	1,279,462	150,221
1908	1,861,412	1,478,950	160,626	96,577	269,842	189,528	391,585	280,064	1,039,359	912,781	1,161,761	132,929
1909	1,856,833	1,480,849	154,767	93,579	264,797	188,378	388,583	278,358	1,048,686	920,534	1,116,500	130,040
1910	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,494,297	.....
1911	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,229,428	.....

BRAZIL.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1910	25,000,000	.....	.....	.....	.....	.....	.....	.....	22,500,000
1913	30,000,000	.....	.....	.....	.....	.....	.....	.....	24,308,219
1914	30,705,000	.....	.....	.....	10,653,000	.....	.....	18,399,000	24,900,000

Principal States.	Estimate of number of animals.[1]		
	Cattle.	Sheep.	Swine.
All Brazil	30,705,000	10,653,000	18,399,000
Bahia	2,683,000	2,224,000	2,410,000
Matto Grosso	2,650,000	26,000	175,000
Minas Geraes	6,861,000	447,000	6,716,000
Rio Grande do Sul	7,249,000	3,745,000	2,204,000
Goyaz	1,873,000	95,000	710,000
Ceara	1,162,000	1,304,000	486,000
Piauhy	1,163,000	516,000	325,000
Sao Paulo	1,322,000	282,000	1,934,000

[1] From O Criador Paulista for January–February, 1914, published under ministry of agriculture of Sao Paulo.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

BRITISH EAST AFRICA.[1]

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1908	1,155,936	.....	.....	.....	4,301,309	.....	.....	12,643	7,771,000
1909	1,100,067	.....	.....	.....	5,639,232	.....	.....	12,898	7,622,000
1910	1,283,531	.....	.....	.....	6,023,148	.....	.....	[2] 11,287	6,708,000
1911	1,552,050	.....	.....	.....	7,365,566	.....	.....	[2] 15,023	6,200,000
1912	1,526,061	.....	.....	.....	7,002,630	.....	.....	[2] 14,859	6,654,000

BRITISH SOUTH AFRICA.

1904[3]	4,062,046	.....	.....	.....	16,348,192	.....	.....	683,903	5,204,781
1911[3]	7,176,115	.....	.....	.....	32,869,662	.....	.....	1,111,026	6,070,268
1912[3]	.....	.....	.....	.....	[4] 35,888,921	.....	.....	.....	[4] 6,211,900

Year.	Number of cattle, by subdivisions.										
	Cape of Good Hope.	Natal.	Orange Free State.	Transvaal.	Swaziland.	Basutoland.	Bechuanaland.	Southern Rhodesia.	Northwestern Rhodesia.	Northeastern Rhodesia.	Nyasaland.
1890	1,524,113	684,699	895,099	.....	.....	.....	.....	.....	.....	.....	.....
1891[3]	2,210,834	686,583	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892	.....	694,347	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893	1,969,594	724,120	.....	.....	.....	.....	.....	.....	.....	.....	.....
1894	1,930,800	703,396	.....	.....	.....	.....	.....	.....	.....	.....	.....
1895	2,062,099	738,450	.....	.....	.....	.....	.....	.....	.....	.....	.....
1896	2,303,582	738,732	.....	.....	.....	.....	.....	.....	.....	.....	.....
1897	2,231,370	[5] 241,933	.....	.....	.....	.....	.....	.....	.....	.....	.....
1898	[5] 1,201,522	[5] 278,558	.....	.....	.....	.....	.....	.....	.....	.....	.....
1899	1,077,044	281,594	.....	.....	.....	.....	.....	.....	.....	.....	.....
1900	.....	349,607	.....	.....	.....	.....	.....	.....	.....	.....	.....
1901	.....	454,943	.....	.....	.....	.....	.....	43,850	.....	.....	5,541
1902	.....	516,602	.....	50,000	.....	.....	.....	.....	.....	.....	8,223
1903	.....	626,727	156,065	200,000	.....	.....	.....	.....	.....	.....	18,860
1904[3]	1,954,390	666,903	363,204	515,956	37,432	213,361	139,071	144,931	.....	.....	26,798
1905	.....	783,887	525,372	800,000	.....	.....	.....	.....	.....	.....	29,215
1906	.....	634,547	.....	444,780	.....	.....	.....	144,900	[6] 13,891		48,887
1907	.....	416,527	.....	513,468	.....	.....	.....	180,000	106,600	[6] 17,691	51,649
1908	.....	538,413	585,077	661,588	50,000	.....	.....	204,000	18,912		54,581
1909	.....	502,212	724,542	899,673	50,000	.....	.....	[7] 232,572	[6] 18,000	[6] 20,500	57,658
1910	.....	.....	.....	989,018	59,000	.....	.....	371,000	[6] 24,433	[6] 9,791	54,994
1911[3]	2,715,330	456,087	1,286,234	1,339,298	57,601	437,411	323,911	463,923	[6] 36,562		59,758
1912	.....	.....	.....	.....	58,000	.....	.....	600,000	255,000		63,467

[1] Includes British East Africa Protectorate, Uganda Protectorate, British Somaliland, Sokotra, Zanzibar (including Pemba Island), Mauritius, the Seychelles, and other east coast not specified. (In Mauritius live stock given on sugar estates only.)
[2] Uganda omitted.
[3] Census.
[4] Union of South Africa.
[5] Decrease in number of cattle due to rinderpest.
[6] Exclusive of horned cattle owned by natives.
[7] Owned by natives only.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

BRITISH SOUTH AFRICA—Continued.

Year.	Number of sheep, by subdivisions.										
	Cape of Good Hope.	Natal.	Orange Free State.	Transvaal.	Swaziland.	Basutoland.	Bechuanaland.	Southern Rhodesia.	Northwestern Rhodesia.	Northeastern Rhodesia.	Nyasaland.
1890	13,202,779	943,117	[1] 6,619,992	.....	.....	.....	.....	.....	.....	.....	.....
1891 [1]	16,706,106	827,559	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892	.....	959,246	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893	16,793,972	945,995	.....	.....	.....	.....	.....	.....	.....	.....	.....
1894	15,154,753	918,827	.....	.....	.....	.....	.....	.....	.....	.....	.....
1895	15,646,486	971,167	.....	.....	.....	.....	.....	.....	.....	.....	.....
1896	14,409,434	844,234	.....	.....	.....	.....	.....	.....	.....	.....	.....
1897	14,049,076	722,805	.....	.....	.....	.....	.....	.....	.....	.....	.....
1898	12,639,992	600,029	.....	.....	.....	.....	.....	.....	.....	.....	.....
1899	.....	609,503	.....	.....	.....	.....	.....	.....	.....	.....	.....
1900	.....	586,489	.....	.....	.....	.....	.....	.....	.....	.....	.....
1901	.....	609,552	.....	.....	.....	.....	.....	48,600	.....	.....	1,912
1902	11,268,902	556,001	.....	30,000	.....	.....	.....	.....	.....	.....	2,883
1903	.....	619,302	1,437,258	200,000	.....	.....	.....	.....	.....	.....	3,696
1904 [1]	11,818,829	668,378	2,999,547	846,939	.....	[2] 2,794	.....	.....	.....	.....	11,705
1905	13,431,816	769,601	4,194,247	1,200,000	.....	.....	.....	.....	.....	.....	11,566
1906	14,848,795	800,090	.....	.....	.....	.....	.....	[3] 140,800	.....	.....	14,697
1907	17,153,013	753,759	.....	2,008,363	.....	.....	.....	[3] 167,000	14,000	.....	16,734
1908	17,306,461	945,477	8,020,308	2,810,053	10,000	.....	.....	[3] 202,535	.....	.....	18,796
1909	18,807,168	1,068,996	7,621,162	3,011,906	10,000	.....	.....	[3] 215,715	.....	.....	17,844
1910	19,026,884	.....	.....	3,170,708	10,000	.....	.....	[3] 231,736	.....	.....	14,763
1911 [1]	17,134,513	1,519,258	8,587,638	3,415,250	[4] 163,593	1,368,999	358,336	292,372	7,572		22,131
1912	.....	.....	.....	.....	[4] 164,000	.....	.....	.....	.....	.....	22,567

Year.	Number of swine, by subdivisions.										
	Cape of Good Hope.	Natal.	Orange Free State.	Transvaal.	Swaziland.	Basutoland.	Bechuanaland.	Southern Rhodesia.	Northwestern Rhodesia.	Northeastern Rhodesia.	Nyasaland.
1890	148,609	39,296	[1] 34,787	.....	.....	.....	.....	.....	.....	.....	.....
1891 [1]	288,190	38,517	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892	225,407	45,676	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893	.....	46,396	.....	.....	.....	.....	.....	.....	.....	.....	.....
1894	228,854	55,943	.....	.....	.....	.....	.....	.....	.....	.....	.....
1895	252,953	61,139	.....	.....	.....	.....	.....	.....	.....	.....	.....
1896	243,027	44,672	.....	.....	.....	.....	.....	.....	.....	.....	.....
1897	240,643	41,015	.....	.....	.....	.....	.....	.....	.....	.....	.....
1898	239,451	36,704	.....	.....	.....	.....	.....	.....	.....	.....	.....
1899	245,947	37,846	.....	.....	.....	.....	.....	.....	.....	.....	.....
1900	.....	42,002	.....	.....	.....	.....	.....	.....	.....	.....	.....
1901	.....	59,047	.....	.....	.....	.....	.....	.....	.....	.....	.....
1902	.....	55,639	.....	1,000	.....	.....	.....	.....	.....	.....	.....
1903	.....	49,799	24,348	1,000	.....	.....	.....	.....	.....	.....	.....
1904 [1]	[5] 385,945	[5] 75,877	[5] 61,409	160,186	.....	[5] 476	.....	.....	.....	.....	.....
1905	.....	66,852	134,782	400,000	.....	.....	.....	.....	.....	.....	2,177
1906	.....	71,764	.....	147,479	.....	.....	.....	.....	.....	.....	19,941
1907	.....	45,381	.....	111,910	.....	.....	.....	.....	.....	.....	36,943
1908	.....	70,657	62,439	167,603	.....	.....	.....	.....	.....	.....	.....
1909	.....	.....	.....	172,031	.....	.....	.....	.....	.....	.....	14,221
1910	.....	77,238	53,988	.....	.....	.....	.....	.....	.....	.....	10,958
1911 [1]	505,730	110,332	162,650	302,882	[5] 8,994	.....	.....	.....	[5] 1,792	.....	18,640
1912	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21,591

[1] Census.
[2] Exclusive of stock owned by natives.
[3] Stock owned by natives only.
[4] Inclusive of goats.
[5] Exclusive of pigs owned by natives.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

BULGARIA.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1892[1]	1,425,781	.....	.....	.....	6,868,291	.....	.....	461,725	3,310,718
1900[1]	1,596,267	.....	.....	.....	7,015,385	.....	.....	367,501	3,744,283
1905[1]	1,695,533	585,077		1,110,456	8,130,997	6,134,724	1,996,273	465,333	4,035,575
1910[1]	1,606,363	106,436	422,603	1,077,324	8,069,260	7,067,892	1,001,368	527,311	4,337,516

CANADA.

1891[1]	4,120,586	1,857,112	2,263,474		2,563,781	.....	.....	1,733,850	4,833,239
1901[1]	5,372,504	2,292,120	3,080,384		2,466,565	.....	.....	2,292,675	5,371,315
1907	7,131,816	2,737,462	4,394,354		2,783,719	.....	.....	3,445,282	6,473,000
1908	7,547,582	2,917,746	4,629,836		2,831,404	.....	.....	3,369,858	6,656,000
1909	7,234,084	2,849,305	4,384,779		2,705,390	.....	.....	2,912,509	6,840,000
1910	7,104,893	2,853,957	4,250,936		2,598,470	.....	.....	2,753,964	7,023,000
1911[1]	6,533,436	2,594,179	3,939,257		2,175,302	.....	.....	3,610,428	7,206,643
1912	6,431,861	2,604,488	3,827,373		2,062,381	.....	.....	3,477,310	7,467,000
1913	6,656,121	2,740,434	3,915,687		2,128,531	.....	.....	3,448,326	7,758,000
1914	6,036,817	2,673,286	3,363,531		2,058,045	.....	.....	3,434,261	8,100,000
1915	6,066,000	2,667,000	3,399,000		2,039,000	.....	.....	3,112,000	.....

CHILE.

1901	862,953	.....	.....	.....	2,734,332	.....	.....	135,378	3,147,000
1902	969,368	.....	.....	.....	2,509,159	.....	.....	178,383	3,174,000
1903	865,102	104,372	.....	.....	3,167,633	.....	.....	136,578	3,206,000
1904	.....	116,208	.....	.....	.....	.....	.....	.....	3,239,000
1905	.....	124,657	.....	.....	.....	.....	.....	.....	3,245,000
1906	2,674,666	92,413	.....	.....	4,528,109	.....	.....	338,993	3,258,000
1907	.....	.....	.....	.....	.....	.....	.....	.....	3,249,279
1908	2,303,659	205,084	.....	.....	4,224,266	.....	.....	216,360	3,298,000
1909	.....	216,137	.....	.....	.....	.....	.....	.....	3,347,000
1910	1,635,140	183,443	.....	.....	3,636,053	.....	.....	177,687	3,415,000
1911	1,640,322	191,077	.....	.....	3,537,728	.....	.....	160,050	3,459,000
1912	1,760,272	195,167	.....	.....	4,168,572	.....	.....	165,673	3,505,000
1913	1,900,000	.....	.....	.....	4,900,000	.....	.....	170,000	3,551,000

COLOMBIA.

1893	2,800,000	.....	.....	.....	746,000	.....	.....	2,300,000	4,331,000
1896	3,465,000	.....	.....	.....	.....	.....	.....	.....	4,511,000
1909	4,000,000	.....	.....	.....	.....	.....	.....	.....	5,291,000
1915	7,000,000	.....	.....	.....	.....	.....	.....	.....	5,500,000

[1] Census.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

CUBA.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1891	2,455,788				78,492			570,194	1,728,000
1892	2,585,309				87,793			535,362	1,752,000
1895	2,485,766				78,494			570,194	1,800,000
1899 [1]	376,650				9,982			358,868	1,572,797
1901	689,353								1,690,000
1902	999,862								1,750,000
1903	1,315,826								1,810,000
1904	1,703,069								1,869,000
1905	2,170,606								1,929,000
1906	2,566,870								1,989,000
1907	2,728,183								2,048,980
1908	2,892,457								2,109,000
1909	3,074,509								2,169,000
1910	3,212,087								2,228,000
1911	2,329,423								2,288,000
1912	2,829,553								2,348,000

DENMARK.

1893	1,666,190	1,011,098	246,169	438,923	1,246,552	548,355	698,197	829,131	2,213,000
1898	1,744,797	1,067,265	255,549	421,983	1,074,413	473,268	601,145	1,168,493	2,371,000
1903	1,840,466	1,089,073	271,590	479,803	876,830			1,456,699	2,519,000
1909	2,253,982	1,281,974	353,969	618,039	726,879	327,337	399,542	1,467,822	2,702,000

FINLAND.

1890 [2]	1,305,187	928,276	376,911	1,054,027			194,192	2,380,140
1891 [2]	1,290,695	926,939	363,756	1,025,543			189,417	2,413,159
1892 [2]	1,287,221	930,329	356,892	995,551			176,135	2,434,001
1893 [2]	1,305,644	949,229	356,415	1,007,238			169,160	2,457,335
1894 [2]	1,364,072	987,732	376,340	1,028,425			178,144	2,487,346
1895 [2]	1,409,183	1,024,556	384,627	1,067,384			197,358	2,525,558
1896 [2]	1,456,353	1,061,289	395,064	1,092,423			214,946	2,561,607
1897 [2]	1,474,991	1,080,180	394,811	1,101,456			222,317	2,600,033
1898 [2]	1,484,965	1,091,088	393,877	1,080,028			224,480	2,645,324
1899 [2]	1,457,423	1,086,909	370,514	1,031,185			214,206	2,682,418
1900 [2]	1,427,560	1,072,002	355,558	985,218			211,367	2,712,562
1901 [2]	1,409,121	1,061,550	347,571	971,079			205,189	2,746,000
1902 [2]	1,406,299	1,058,249	348,050	942,186			210,473	2,784,000
1903 [2]	1,417,503	1,052,564	364,939	919,333			213,867	2,820,000
1904 [2]	1,450,914	1,066,251	384,663	936,333			215,910	2,862,000
1905 [2]	1,480,692	1,097,198	383,494	937,565			220,357	2,899,000
1906 [2]	1,475,286	1,102,262	373,024	912,065			218,881	2,942,000
1907 [2]	1,491,264	1,113,633	377,631	904,447			221,072	2,984,000
1908 [2]		1,105,667						3,028,000
1909 [2]		1,112,960						3,071,000
1910 [2]		1,145,631						3,115,000
1910 [4]	1,573,163	1,142,908	430,255	[5] 1,309,186			[6] 418,500	

[1] Census on and off farms.
[2] December 31.
[3] June 25.
[4] September.
[5] Includes 540,292 under 1 year old.
[6] Includes 263,268 under 8 months old.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

FRANCE.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
						Ewes over 2 years.			
1890	13,562,685	6,509,325		7,053,360	21,658,416	8,898,674	12,759,742	6,017,238	38,390,000
1891	13,661,533	6,557,632		7,103,901	21,791,909	8,903,864	12,888,045	6,096,232	38,350,000
1892	13,364,434	6,450,645		6,913,789	21,504,956	8,804,845	12,700,111	6,337,100	38,360,000
1893	12,154,641	6,005,246		6,149,395	20,275,716	8,400,851	11,874,865	5,860,592	38,380,000
1894	12,879,240	6,229,434		6,649,806	20,721,850	8,543,626	12,178,224	6,038,372	38,420,000
1895	13,233,828	6,359,795		6,874,033	21,163,767	8,606,077	12,557,690	6,306,019	38,460,000
1896	13,334,631	6,351,491		6,983,140	21,190,603	8,620,200	12,570,403	6,402,370	38,520,000
1897	13,496,519	6,444,238		7,042,281	21,445,113	8,759,457	12,685,656	6,262,764	38,600,000
1898	13,418,687	6,473,489		6,945,198	21,277,582	8,884,804	12,392,778	6,280,966	38,800,000
1899	13,550,880	6,545,850		7,005,030	21,357,660	9,000,820	12,356,840	6,305,200	38,900,000
1900	14,520,832	7,819,582		6,701,250	20,179,561	9,017,544	11,162,017	6,740,405	38,900,000
1901	14,673,810	8,068,857		6,604,953	19,669,682	8,847,866	10,821,816	6,758,198	38,980,000
1902	14,928,550	8,317,924		6,610,626	18,476,788	8,822,402	9,654,386	7,209,174	39,055,000
						Ewes over 1 year.			
1903	14,105,090	7,466,583		6,638,507	17,954,230	9,878,364	8,075,866	7,560,650	39,124,000
1904	14,136,869	7,438,464		6,698,405	17,800,965	9,897,800	7,903,165	7,523,383	39,190,000
1905	14,315,552	7,515,564		6,799,988	17,783,209	9,882,263	7,900,946	7,558,779	39,222,000
1906	13,968,014	7,377,191		6,590,823	17,461,397	9,811,092	7,650,305	7,049,012	39,282,000
1907	13,949,722	7,336,214		6,613,508	17,460,284	9,863,100	7,597,184	6,995,124	39,279,000
1908	14,239,730	7,520,750		6,718,980	17,456,380	9,863,230	7,593,150	7,202,430	39,368,000
1909	14,297,570	7,538,720		6,758,850	17,357,640	9,813,250	7,544,390	7,305,850	39,421,000
1910	14,532,030	7,596,250		6,935,780	17,110,760	9,753,700	7,357,060	6,900,230	39,528,000
1911	14,435,530	7,606,670		6,828,860	16,425,330	9,436,100	6,989,230	6,719,570	39,602,258
1912	14,705,900	7,745,750		6,960,150	16,467,700	9,517,400	6,950,300	6,903,750	39,660,000
1913	14,807,380	7,807,560		6,999,820	16,213,030	9,334,840	6,878,190	7,047,750	39,722,000

GERMAN EAST AFRICA.

1903	510,472				[1] 2,985,000			1,468	6,847,000
1904	574,670				[1] 3,584,000			1,504	6,847,000
1905	523,052				[1] 3,380,492			1,447	6,708,000
1911	1,489,178				[1] 2,793,437				7,846,000

GERMANY.

1892	17,555,834	9,946,164		7,609,670	13,589,662	6,771,647	6,818,015	12,174,442	50,266,000
1897	18,490,772				10,866,772			14,274,557	53,569,000
1900	18,939,692	10,458,631		8,481,061	9,692,501	5,124,723	4,567,778	16,807,014	56,046,000
1904	19,331,568	10,456,137		8,875,431	7,907,173			18,920,666	59,475,000
1907	20,630,544	10,966,998		9,663,546	7,703,710	4,228,269	3,475,441	22,146,532	62,013,000
1912	20,182,021	10,222,792			5,803,445			21,923,703	66,146,000
1913	20,944,258				5,504,195			25,591,794	66,981,000

GREECE.

1902	406,744				4,568,158			79,716	2,540,000
1912	400,000				4,000,000			80,000	2,721,952
1913					4,000,000			60,000	2,739,952

[1] Sheep and goats.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

ITALY.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1890	5,000,000				6,900,000			1,800,000	30,158,408
1905	5,672,000							2,224,000	33,248,545
1908	6,196,861				11,162,926	7,874,216	3,288,710	2,507,798	33,948,340

JAPAN.

1890	1,044,976	613,522	431,454					40,453,461
1891	1,057,422	622,006	435,416					40,718,677
1892	1,094,799	643,292	451,507					41,089,940
1893	1,105,201	657,841	447,360					41,388,313
1894	1,091,369	649,942	441,427					41,813,215
1895	1,136,278	682,206	454,072					42,270,620
1896	1,149,761	692,312	457,449					42,708,264
1897	1,214,163	732,444	481,719					43,228,863
1898	1,230,476	742,412	488,064					43,763,855
1899	1,252,865	769,163	483,702	2,462	1,468	994	206,217	44,270,495
1900	1,261,214	774,658	486,556	2,400	1,514	886	181,176	44,825,597
1901	1,282,341	792,707	489,634	2,545	1,483	1,062	202,037	45,437,000
1902	1,275,381	795,650	479,731	2,289	1,519	770	213,417	46,022,000
1903	1,286,116	804,143	481,973	2,288	1,396	892	212,569	46,732,876
1904	1,200,135	762,346	437,889	2,769	2,032	737	191,952	47,216,000
1905	1,167,610	747,516	420,094	3,590	2,468	1,122	228,204	47,674,000
1906	1,190,373	763,788	426,585	3,501	2,437	1,064	284,708	48,161,000
1907	1,237,161	807,630	429,531	3,949	2,783	1,166	317,640	48,816,000
1908	1,297,974	851,361	446,613	4,085	3,081	1,004	284,729	49,588,804
1909	1,350,404	882,438	467,966	3,411	2,449	962	287,107	50,254,471
1910	1,384,183	910,702	473,481	3,357	2,366	991	279,101	50,985,000
1911	1,405,026	927,416	477,610	3,736	2,696	1,040	298,709	51,646,000
1912	1,399,498	921,627	477,871	3,308	2,466	842	308,970	52,646,000

MADAGASCAR.

1898	2,000,000							2,252,000
1904	2,342,792							2,645,000
1905	2,651,100							2,707,000
1906	3,908,372							2,795,000
1907	3,706,229							2,880,000
1908	3,812,671				264,083		479,116	2,966,000
1909	4,120,000				246,955		407,732	3,000,000
1910	4,492,131				400,000		600,000	3,055,000
1911	4,573,370							3,105,000
1912	5,530,209							3,257,000

MEXICO.

1902[1]	5,142,457				3,424,430		616,139	14,000,000

[1] Census June 30.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

NETHERLANDS.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
								Over 2 months old.	
1890 [1]	1,532,800	900,600	.....	632,200	819,400	.....	.....	578,700	4,565,000
1891 [1]	1,532,200	897,400	.....	634,800	806,200	.....	.....	547,500	4,622,000
1892 [1]	1,528,500	894,000	.....	634,500	752,300	.....	.....	543,900	4,670,000
1893 [1]	1,485,800	877,200	.....	608,600	688,400	.....	.....	571,100	4,733,000
1894 [1]	1,508,600	891,900	.....	616,700	665,300	.....	.....	640,200	4,796,000
1895 [1]	1,543,200	904,400	.....	638,800	679,200	.....	.....	662,200	4,859,000
1896 [1]	1,583,400	916,900	.....	666,500	706,400	.....	.....	656,100	4,929,000
1897 [1]	1,621,300	936,000	.....	685,300	729,100	.....	.....	653,500	5,004,000
1898 [1]	1,640,600	951,500	.....	689,100	736,600	.....	.....	714,100	5,075,000
1899 [1]	1,646,500	952,400	.....	688,100	755,400	.....	.....	736,600	5,140,000
1900 [1]	1,655,700	965,800	.....	689,900	770,700	.....	.....	746,600	5,179,000
1901 [1]	1,649,456	964,461	.....	684,995	751,906	.....	.....	763,601	5,263,000
1902 [1]	1,646,856	967,492	.....	679,364	709,270	.....	.....	822,537	5,347,000
1903 [1]	1,660,376	971,126	.....	689,250	652,222	.....	.....	882,129	5,431,000
1904 [1]	1,690,463	973,098	.....	717,365	606,785	.....	.....	861,840	5,510,000
								All ages.	
1910 [2]	2,026,943	1,068,361	.....	958,582	889,036	.....	.....	1,259,844	5,946,000

NEW ZEALAND.

1891	788,919	206,906	.....	.....	17,865,423	.....	.....	222,553	634,058
1892–1893	808,439	.....	.....	.....	18,570,752	.....	.....	.....	650,433
1893–1894	885,305	.....	.....	.....	19,380,369	.....	.....	.....	672,265
1894–1895	964,034	257,140	.....	.....	20,230,829	.....	.....	.....	686,128
1895–1896	1,047,901	276,217	205,477	566,207	19,826,604	.....	.....	239,778	698,706
1896–1897	1,138,067	300,219	208,051	629,797	19,138,493	.....	.....	209,834	714,162
1897–1898	1,209,165	324,485	215,439	669,241	19,687,954	10,220,265	9,467,689	186,027	729,056
1898–1899	1,203,024	333,536	225,992	643,496	19,673,725	10,043,153	9,630,572	193,512	743,463
1899–1900	1,222,139	355,256	226,775	640,108	19,348,506	10,278,657	9,069,849	249,751	756,505
1900–1901	1,256,680	372,416	237,223	647,041	19,355,195	10,351,625	9,003,570	250,975	768,278
1901–1902	1,361,784	381,492	255,394	724,898	20,233,099	11,004,177	9,228,922	224,024	787,657
1902–1903	1,460,663	428,773	261,192	770,698	20,342,727	11,034,911	9,307,816	193,740	807,929
1903–1904	1,503,547	468,125	[3] 555,155	570,267	18,954,553	10,502,314	8,452,239	226,591	832,505
1904–1905	1,736,850	498,241	[3] 632,306	606,303	18,290,806	10,265,295	8,015,511	255,320	857,539
1905–1906	1,810,936	517,720	[3] 666,784	626,432	19,130,575	10,788,562	8,342,313	249,727	882,462
1906–1907	1,851,750	543,927	[3] 678,607	629,216	20,106,471	11,411,921	8,696,550	242,273	908,726
1907–1908	1,816,299	541,363	[3] 678,579	596,357	20,983,772	11,731,849	9,251,924	241,128	929,484
1908–1909	1,773,326	536,629	[3] 659,432	577,265	22,449,053	12,410,896	10,038,157	245,092	960,642
1909–1910	.....	.....	.....	.....	23,480,707	13,385,605	10,095,102	.....	982,926
1910–1911	2,020,171	633,733	1,386,438		24,269,620	13,723,893	10,545,727	348,754	1,002,679
1911–1912	.....	.....	.....	.....	23,996,126	13,636,923	10,359,203	.....	1,025,406
1912–1913	.....	.....	.....	.....	23,750,153	.....	.....	.....	1,052,627
1913–1914	.....	.....	.....	.....	24,191,810	.....	.....	.....	1,066,000

NORWAY.

1890	1,006,499	706,925		299,574	1,417,524	.....	.....	121,057	2,000,917
1900	950,201	689,563		260,638	998,819	.....	.....	165,348	2,240,032
1907	1,094,101	727,898		366,203	1,393,488	.....	.....	318,556	2,331,000
1910	1,133,613	.....	.....	.....	1,398,383	.....	.....	333,709	2,391,782

[1] December. [2] June. [3] Includes "Heifers under 2 years," previously given under "Other cattle."

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

PARAGUAY.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1890	861,954				62,920			10,778	400,000
1896	2,102,680				130,352			39,513	500,000
1897	1,774,000				117,250			35,160	540,000
1899 [1]	2,283,000				214,020			23,850	633,000
1900	2,743,665				214,060			23,900	645,000
1901	3,500,000								660,000
1902	3,104,453								675,000
1908	5,500,000								750,000
1912	3,500,000								800,000

PORTUGAL.

1906	708,198				3,072,988			1,110,957	5,233,000
1908	857,000	(†) 18,500	252,000	586,500	3,150,000			1,300,000	5,304,000

ROUMANIA.

1890	2,473,147	820,511		1,652,636	5,002,390			926,124	5,318,000
1896	2,138,315				6,847,825			1,079,322	5,710,000
1900	2,545,051	[2] 380,720	320,507	1,793,824	5,655,444	4,397,727	1,257,717	1,709,205	6,045,000
1907					5,104,506			1,123,564	6,684,000
1911	2,666,945				5,269,493			1,021,465	7,087,000

RUSSIA, ASIATIC.

1905	5,590,248				11,260,151			764,766	21,796,300
1906	6,013,380				12,403,225			855,113	22,200,000
1907	13,373,013				32,913,308			1,412,280	22,661,600
1908	13,790,521				36,235,531			1,504,534	24,062,200
1909	14,359,234				34,605,823			1,670,417	24,889,000
1910	15,102,188				32,234,018			1,848,202	25,664,500
1911	14,680,251				34,493,606			1,533,840	27,296,800

RUSSIA, EUROPEAN, INCLUDING POLAND.

1890	28,541,400				49,806,900			11,062,800	89,000,000
1891	28,013,500				42,817,600			10,762,300	91,100,000
1892	26,686,300				40,089,500			10,064,000	93,200,000
1893									
1894	26,795,100				40,448,800			10,017,300	97,400,000
1895	27,359,300				41,441,500			10,421,100	99,500,000
1896	32,442,500				49,497,000			14,646,600	101,600,000
1897	33,453,000				48,737,600			14,445,300	103,700,201
1898	32,946,900				49,225,100			12,500,900	105,800,000
1899	38,736,700				48,418,700			12,946,700	107,900,000
1900	34,483,900				50,451,100			13,162,800	110,000,000
1901	34,688,600				50,250,500			13,523,600	112,100,000
1902	34,964,800				50,237,400			13,188,100	114,200,000
1903	34,671,100				49,205,800			12,873,200	116,258,200
1904	34,427,200				49,041,900			13,186,200	122,423,000
1905 [3]	39,453,556				53,437,512			12,275,731	124,655,800
1906 [3]	37,566,825				49,901,866			11,870,841	127,000,000
1907 [3]	35,196,886				49,415,297			13,163,090	129,303,100
1908 [3]	35,182,157				45,532,145			12,936,945	132,973,300
1909 [3]	35,881,775				46,709,574			12,788,853	135,859,400
1910 [3]	36,301,602				48,176,469			13,521,116	138,274,500
1911 [3]	36,237,688				46,381,902			14,139,090	140,683,000
1912	34,571,750				[4]42,754,889			11,955,934	138,500,000
1913 [3]	37,165,255				[4]42,782,531			12,486,755	145,900,000

[1] Census. [2] Milch cows. [3] Includes Northern Caucasia. [4] Including goats.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

SERVIA.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1890	819,251				2,963,904	2,214,127	749,777	908,608	2,161,961
1895	915,428				3,094,206	2,406,973	687,233	904,446	2,312,484
1900	956,661	307,764		648,897	3,061,759	2,547,885	513,874	959,580	2,492,882
1905	962,503	330,847		631,656	3,160,166	2,719,122	441,044	908,108	2,688,025
1910	957,105	313,776		643,329	3,818,997			865,769	2,912,000

SPAIN.

1891	2,217,659				13,359,473			1,927,864	17,785,000
1905	2,075,142				13,025,512			1,743,863	19,049,000
1906	2,497,062				13,480,811			2,080,404	19,147,000
1907	2,212,013				13,727,695			2,031,132	19,245,000
1908	2,452,197				16,119,051			2,120,177	19,343,000
1909	2,317,478				15,471,183			2,296,011	19,442,000
1910	2,368,767				15,117,105			2,424,039	19,588,688
1911	2,541,112				15,725,852			2,472,416	19,611,000
1912	2,561,894				15,829,954			2,571,359	19,700,000

SWEDEN.

				Including heifers.					
1890	2,399,491	1,578,927		820,564	1,350,804			644,861	4,784,981
1891	2,420,110	1,595,315		824,795	1,345,337			655,073	4,802,751
1892	2,482,922	1,635,464		847,458	1,352,330			682,178	4,806,865
1893	2,473,981	1,647,400		826,581	1,323,978			717,339	4,824,150
1894	2,515,536	1,683,116		832,420	1,319,289			769,192	4,873,183
1895	2,540,225	1,705,604		834,621	1,313,385			787,461	4,919,260
1896	2,554,577	1,724,601		829,976	1,298,732			788,736	4,962,568
1897	2,548,192	1,725,355		822,837	1,296,851			802,859	5,009,632
1898	2,581,667	1,750,637		831,030	1,291,482			816,217	5,062,918
1899	2,583,065	1,766,915		816,150	1,283,786			810,839	5,097,402
1900	2,582,555	1,764,819		817,736	1,261,493			805,805	5,136,441
1901	2,594,359	1,784,421		809,938	1,231,801			808,790	5,175,228
1902	2,577,409	1,774,537		802,872	1,195,689			807,621	5,198,752
1903	2,586,204	1,782,683		803,521	1,167,473			816,479	5,221,291
1904	2,545,583	1,763,176		782,407	1,105,903			796,572	5,260,811
1905	2,549,928	1,763,857		786,071	1,074,386			829,888	5,294,885
1906	2,600,151	1,792,075		808,076	1,051,119			872,363	5,337,065
1907	2,628,982	1,804,473		824,509	1,021,727			878,828	5,377,713
1908	2,685,020	1,838,770		846,250	1,010,217			894,670	5,429,600
1909	2,729,887	1,847,041		882,846	1,021,719			921,981	5,476,441
1910	2,747,526	1,861,219		886,307	1,003,981			957,128	5,522,403
1911	2,689,609	1,837,035		852,574	945,709			951,164	5,561,799

SWITZERLAND.

1886	1,212,538	850,085		362,453	341,804			394,917	2,886,832
1896	1,306,696	895,429		411,267	271,901			566,974	3,151,101
1901	1,340,375	982,095		358,280	219,438			555,261	3,340,984
1903	2,080,297								3,428,554
1906	1,498,144	1,070,126		428,018	209,997			548,970	3,559,909
1911	1,443,483	796,909		646,574	161,414			570,236	3,781,430

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

UNITED KINGDOM.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1890	10,789,421	3,956,321	.....	6,833,100	31,666,785	.....	.....	4,362,127	37,484,764
1891	11,343,720	4,117,705	.....	7,226,015	33,534,210	.....	.....	4,272,700	37,802,381
1892	11,519,517	4,120,836	.....	7,398,681	33,642,883	.....	.....	3,263,482	38,123,817
1893	11,207,585	4,014,209	.....	7,193,376	31,774,686	.....	.....	3,278,062	38,489,906
1894	10,780,441	3,925,525	.....	6,854,916	30,037,748	.....	.....	3,794,057	38,858,306
1895	10,753,305	3,937,618	.....	6,815,687	29,773,447	.....	.....	4,238,880	39,220,114
1896	10,942,047	3,958,822	.....	6,983,225	30,853,806	.....	.....	4,300,038	39,597,843
1897	11,004,973	3,984,616	.....	7,020,357	30,567,386	.....	.....	3,683,043	39,985,831
1898	11,149,919	4,035,971	.....	7,113,948	31,102,036	.....	.....	3,719,449	40,380,792
1899	11,344,881	4,133,285	.....	7,211,596	31,680,656	.....	.....	4,003,588	40,774,296
1900	11,455,009	4,096,682	.....	7,358,327	31,054,726	.....	.....	3,663,716	41,154,646
1901	11,477,824	4,102,061	.....	7,375,763	30,829,889	.....	.....	3,411,129	41,538,172
1902	11,376,986	4,084,341	.....	7,292,645	30,056,756	.....	.....	3,639,782	41,892,508
1903	11,408,504	4,100,480	.....	7,308,024	29,658,863	.....	.....	4,085,808	42,246,279
1904	11,575,551	4,193,721	.....	7,381,820	29,105,109	.....	.....	4,191,695	42,610,920
1905	11,674,019	4,211,916	.....	7,462,103	29,076,777	.....	.....	3,601,659	42,980,128
1906	11,691,955	4,252,286	.....	7,439,669	29,210,035	.....	.....	3,580,740	43,360,331
1907	11,630,142	4,338,748	.....	7,291,394	30,011,833	.....	.....	3,967,163	43,736,942
1908	11,738,792	4,368,365	.....	7,370,427	31,332,400	.....	.....	4,055,793	44,122,777
1909	11,761,830	4,360,982	.....	7,400,848	31,839,799	.....	.....	3,543,331	44,518,264
1910	11,766,453	4,342,186	.....	7,423,267	31,164,587	.....	.....	3,561,481	44,914,591
1911	11,866,111	4,407,800	.....	7,458,311	30,479,807	.....	.....	4,250,013	45,298,573
1912	11,914,635	4,400,816	.....	7,513,819	28,967,495	.....	.....	3,992,549	45,665,423
1913	11,936,600	4,317,957	.....	7,618,643	27,629,206	.....	.....	3,305,771	46,026,483

IRELAND.

1890	4,240,316	1,400,527	.....	.....	4,323,395	.....	.....	1,570,366	.....
1891	4,448,511	1,442,268	.....	.....	4,722,613	.....	.....	1,367,712	.....
1892	4,531,125	1,451,059	.....	.....	4,827,777	.....	.....	1,113,472	.....
1893	4,464,057	1,441,329	.....	.....	4,421,455	.....	.....	1,152,417	.....
1894	4,391,839	1,447,441	.....	.....	4,105,180	.....	.....	1,389,324	.....
1895	4,358,032	1,433,988	.....	.....	3,913,449	.....	.....	1,338,464	.....
1896	4,408,133	1,429,795	.....	.....	4,080,711	.....	.....	1,404,586	.....
1897	4,464,874	1,434,925	.....	.....	4,157,906	.....	.....	1,327,450	.....
1898	4,486,949	1,431,192	.....	.....	4,287,551	.....	.....	1,253,912	.....
1899	4,507,457	1,443,855	.....	.....	4,364,507	.....	.....	1,363,310	.....
1900	4,608,550	1,458,074	.....	.....	4,386,876	.....	.....	1,268,521	.....
1901	4,673,323	1,482,483	.....	.....	4,378,750	.....	.....	1,219,135	.....
1902	4,782,221	1,510,737	.....	.....	4,215,865	.....	.....	1,327,610	.....
1903	4,664,112	1,495,179	.....	.....	3,944,604	.....	.....	1,383,516	.....
1904	4,676,718	1,497,647	.....	.....	3,827,919	.....	.....	1,315,126	.....
1905	4,645,215	1,487,064	.....	.....	3,749,352	.....	.....	1,164,316	.....
1906	4,638,924	1,496,284	.....	.....	3,714,832	.....	.....	1,244,193	.....
1907	4,676,493	1,561,463	.....	.....	3,816,609	.....	.....	1,317,068	.....
1908	4,792,458	1,497,799	.....	.....	4,126,106	.....	.....	1,217,840	.....
1909	4,699,564	1,464,107	.....	.....	4,133,358	.....	.....	1,149,179	.....
1910	4,688,888	1,470,972	.....	.....	3,979,516	.....	.....	1,200,005	.....
1911	4,711,720	1,468,545	.....	.....	3,907,436	.....	.....	1,415,119	.....
1912	4,848,498	1,508,662	.....	.....	3,828,829	.....	.....	1,323,957	.....
1913	4,932,625	1,533,517	.....	.....	3,620,794	.....	.....	1,060,360	.....

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

UNITED STATES.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
On farms and ranges:									
1840[1]	14,971,586				19,311,374			26,301,293	17,069,453
1850[1]	17,778,907	6,385,094	11,393,813		21,723,220			30,354,213	23,191,876
1860[1]	25,620,019	8,585,735	17,034,284		22,471,275			33,512,867	31,443,321
1870[1]	23,820,608	8,935,332	14,885,276		28,477,951			25,134,569	38,558,371
1880[1]	35,926,511	12,443,120	23,483,391		35,192,074			47,681,700	50,155,783
1890[1]	51,363,572	16,511,950	34,851,622		35,935,364			57,409,583	62,947,714
1900[1]	67,719,410	17,135,633	18,733,677	31,850,100	61,503,713	31,857,652	29,646,061	62,868,041	75,994,575
1901[2]	62,334,000	16,834,000	45,500,000		59,757,000			56,982,000	77,612,569
1902[2]	61,425,000	16,697,000	44,728,000		62,039,000			48,699,000	79,230,563
1903[2]	61,764,000	17,105,000	44,659,000		63,965,000			46,923,000	80,848,557
1904[2]	61,049,000	17,420,000	43,629,000		51,630,000			47,009,000	82,466,551
1905[2]	61,242,000	17,573,000	43,669,000		45,170,000			47,321,000	84,084,545
1906[2]	66,862,000	19,794,000	47,068,000		50,632,000			52,103,000	85,702,533
1907[2]	72,534,000	20,968,000	51,566,000		53,240,000			54,794,000	87,320,539
1908[2]	71,267,000	21,194,000	50,073,000		54,631,000			56,084,000	88,938,527
1909[2]	71,099,000	21,720,000	49,379,000		56,084,000			54,147,000	90,556,521
1910[3]	61,803,866	20,625,432	19,319,562	21,858,872	52,447,861	31,933,797	20,514,064	58,185,676	91,972,266
1911[2]	60,502,000	20,823,000	39,679,000		53,633,000			65,620,000	93,590,260
1912[2]	57,959,000	20,699,000	37,260,000		52,362,000			65,410,000	95,208,254
1913[2]	56,527,000	20,497,000	36,030,000		51,482,000			61,178,000	96,826,248
1914[2]	56,592,000	20,737,000	35,855,000		49,719,000			58,933,000	98,444,242
1915[2]	58,329,000	21,262,000	37,067,000		49,956,000			64,618,000	100,062,236
1916[2]	61,441,000	21,988,000	39,453,000		49,162,000			68,047,000	101,680,230
On and off farms and ranges:									
1900[4]	69,835,832	18,108,666			61,735,014			64,686,155	
1910[5]	63,682,648	21,795,770			52,838,748			59,473,636	

URUGUAY.

1893	5,496,975				12,249,787			27,762	748,000
1894	5,405,272				12,820,736			26,215	776,000
1895	5,247,871				14,333,626			30,751	793,000
1896	5,881,402				16,397,494			32,494	819,000
1897	4,963,151				14,451,714			29,829	841,000
1898	4,926,629				15,537,689			34,881	864,000
1899	5,219,037				15,121,739			34,050	893,000
1900[4]	6,827,428				18,606,717			93,923	915,647
1900	6,430,564				17,196,172			50,054	
1901	6,326,601				17,624,548			47,584	965,000
1902	7,029,078				17,927,071			51,696	990,000
1903	6,947,936				18,559,106			48,716	1,019,000
1904	7,304,607				14,415,658			40,825	1,038,000
1905	6,028,980				13,915,796			35,546	1,071,000
1908[5]	8,192,602	565,854	3,777,627	3,849,121	26,286,296	13,586,309	12,699,987	180,099	1,042,686

[1] Census, June 1.
[2] Estimate, Department of Agriculture, Jan. 1.
[3] Census, Apr. 15.
[4] Census.
[5] Census, October 12.

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TABLE 1.—*Number of cattle, sheep, and swine, and population in specified countries, by years*—Continued.

URUGUAY—Continued.

Breed.	Cattle.						
	Total.	Dairy cows.	Other cows.	Bulls.	Oxen.	Novillos (young bullocks).	Calves.
Purebreds	157,859	10,775	78,774	18,102	1,417	12,343	36,448
Grades	5,204,489	289,103	2,375,107	86,314	99,714	965,044	1,389,207
Natives	2,690,788	205,385	1,323,746	49,832	175,404	342,411	594,010
Not specified	139,466	60,591	.....	3,794	24,741	.....	50,340
Total	8,192,602	565,854	3,777,627	158,042	301,276	1,319,798	2,070,005

Breed.	Sheep.						
	Total.	Ewes.	Rams.	Wethers.	Lambs between 1 and 2 years.	Lambs under 1 year.	Not specified.
Purebreds	545,615	274,634	33,755	55,901	83,529	97,796	.....
Grades	24,086,751	12,466,419	178,526	3,689,936	3,368,324	4,383,546	.....
Natives	1,370,025	845,256	11,840	118,304	147,103	247,522	.....
Not specified	283,905	.....	.....	.....	.....	.....	283,905
Total	26,286,296	13,586,309	224,121	3,864,141	3,598,956	4,728,864	283,905

VENEZUELA.

Year.	Cattle.				Sheep.			Swine.	Population.
	Total.	Dairy cows.	Other cows and heifers.	Other cattle.	Total.	Ewes.	Other sheep.		
1888 [1]	8,476,300	.....	.....	.....	[2] 5,727,500	.....	.....	1,929,700	2,270,000
1894 [3]	2,351,590	.....	.....	.....	[2] 134,014	.....	.....	1,618,214	2,390,000
1895 [1]	(4)	.....	.....	.....	.....	.....	.....	.....	2,410,000
1900 [1]	2,004,257	.....	.....	.....	[2] 176,668	.....	.....	1,618,214	2,510,000
1909 [5]	6,000,000	.....	.....	.....	[2] 1,600,000	.....	.....	1,600,000	2,685,440

[1] Statesman's Yearbook.
[2] Sheep and goats.
[3] Annual statement of the United States of Venezuela, p. 163.
[4] From 4,000,000 to 5,000,000.
[5] Bulletin Bureau of American Republics, August, 1910.

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TABLE 2.—*Number of cattle, sheep, and swine on farms in the United States, 1840 to 1916, by geographic divisions.*

NEW ENGLAND.

Year.	Cattle.			Sheep (not including spring lambs, 1840 to 1890).			Swine.
	Total.	Milch cows.	Other cows and heifers.	Total.	Ewes.	Other.	
1840 [1]	1,545,273			3,820,307			748,698
1850 [1]	1,469,028	608,219		2,257,583			361,481
1860 [1]	1,572,776	679,930		1,779,767			326,176
1870 [1]	1,358,137	642,593		1,450,155			241,000
1880 [1]	1,503,452	746,656		1,362,234			362,133
1890 [1]	1,411,852	822,001		936,532			407,590
1900 [1]	1,606,615	893,478	275,477	922,558	527,301	395,257	382,199
1910 [2]	1,336,550	841,698	241,051	430,672	289,454	141,218	396,642
1914 [3]	1,320,000	825,000		385,000			431,000
1915 [3]	1,315,000	818,000		364,000			436,000
1916 [3]	1,331,000	825,000		351,000			456,000

MIDDLE ATLANTIC.

1840 [1]	3,304,111			7,105,682			3,665,472
1850 [1]	3,242,846	1,580,284		5,436,086			2,308,988
1860 [1]	3,631,461	1,935,999		4,384,623			2,177,533
1870 [1]	3,587,363	2,190,429		4,095,946			1,528,362
1880 [1]	4,293,844	2,444,089		3,608,798			2,158,944
1890 [1]	4,049,872	2,529,060		3,196,495			2,345,759
1900 [1]	4,733,220	2,602,788	739,326	3,324,542	1,732,522	1,592,020	1,960,007
1910 [2]	4,232,521	2,597,652	672,623	1,844,057	1,057,902	786,155	1,790,821
1914 [3]	4,130,000	2,554,000		1,745,000			2,041,000
1915 [3]	4,200,000	2,598,000		1,711,000			2,115,000
1916 [3]	4,331,000	2,662,000		1,734,000			2,170,000

SOUTH ATLANTIC.

1840 [1]	471,924			2,637,212			6,566,682
1850 [1]	4,179,915	1,246,678		2,960,105			7,497,036
1860 [1]	3,950,863	1,238,633		2,540,965			7,193,473
1870 [1]	2,938,856	1,001,094		2,109,580			3,859,677
1880 [1]	3,860,703	1,280,761		2,530,006			5,691,583
1890 [1]	3,890,107	1,369,466		2,445,386			5,082,321
1900 [1]	4,431,750	1,383,319	1,075,320	2,698,915	1,381,330	1,317,585	5,562,762
1910 [2]	4,839,321	1,810,754	1,456,003	2,513,553	1,345,456	1,168,097	5,963,920
1914 [3]	4,697,000	1,807,000		2,248,000			6,617,000
1915 [3]	4,744,000	1,840,000		2,238,000			7,074,000
1916 [3]	4,923,000	1,883,000		2,241,000			7,683,000

EAST NORTH CENTRAL.

1840 [1]	3,499,493			3,203,135			5,565,881
1850 [1]	3,443,579	1,287,739		6,830,796			6,509,576
1860 [1]	5,289,641	1,945,316		6,911,774			8,559,512
1870 [1]	5,418,810	2,247,683		11,164,789			7,235,130
1880 [1]	7,629,040	2,990,852		10,566,266			13,590,908
1890 [1]	9,033,132	3,752,237		9,449,783			14,995,448
1900 [1]	10,532,314	3,962,481	1,699,618	11,216,273	6,006,474	5,209,799	16,047,251
1910 [2]	9,819,097	4,329,527	2,116,910	9,542,234	5,536,905	4,005,329	14,461,059
1914 [3]	9,489,000	4,890,000		8,392,000			15,157,000
1915 [3]	9,622,000	4,988,000		8,126,000			15,812,000
1916 [3]	10,050,000	5,163,000		7,627,000			15,973,000

[1] Census, June 1.
[2] Census, Apr. 15.
[3] Estimate, Department of Agriculture, Jan. 1.

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TABLE 2.—*Number of cattle, sheep, and swine on farms in the United States, 1840 to 1916, by geographic divisions*—Continued.

WEST NORTH CENTRAL.

Year.	Cattle.			Sheep (not including spring lambs, 1840 to 1890).			Swine.
	Total.	Milch cows.	Other cows and heifers.	Total.	Ewes.	Other.	
1840 [1]	2,679,587			363,372			1,376,060
1850 [1]	930,133	276,480		912,551			2,026,606
1860 [1]	1,959,782	611,220		1,229,647			3,554,496
1870 [1]	2,936,671	1,046,324		2,473,551			4,076,880
1880 [1]	7,702,440	2,411,229		2,863,623			14,061,941
1890 [1]	15,539,268	4,488,762		2,882,301			22,629,184
1900 [1]	20,089,099	4,527,803	4,911,677	4,964,283	2,669,058	2,295,225	24,427,038
1910 [2]	17,647,714	5,327,606	5,059,351	5,065,009	3,053,164	2,011,845	21,281,509
1914 [3]	15,279,000	5,337,000		4,972,000			19,701,000
1915 [3]	16,092,000	5,503,000		4,879,000			22,988,000
1916 [3]	17,055,000	5,706,000		4,795,000			24,391,000

EAST SOUTH CENTRAL.

1840 [1]	3,471,198			2,041,443			7,662,222
1850 [1]	2,965,259	939,953		2,590,491			9,483,237
1860 [1]	3,104,096	956,912		2,435,095			7,959,005
1870 [1]	2,332,261	835,351		2,238,214			5,201,055
1880 [1]	3,095,993	1,145,403		2,308,290			6,790,000
1890 [1]	3,822,184	1,312,074		2,316,279			6,544,683
1900 [1]	3,668,521	1,264,282	635,591	2,423,039	1,223,888	1,199,151	6,645,348
1910 [2]	3,942,526	1,628,061	1,039,049	2,496,221	1,342,911	1,153,310	5,438,606
1914 [3]	3,568,000	1,539,000		2,281,000			5,849,000
1915 [3]	3,627,000	1,563,000		2,230,000			6,182,000
1916 [3]	3,772,000	1,615,000		2,143,000			6,572,000

WEST SOUTH CENTRAL.

1840 [1]				140,223			716,278
1850 [1]	1,198,166	416,538		302,119			2,126,050
1860 [1]	4,620,374	902,205		1,137,369			3,177,687
1870 [1]	4,187,239	659,083		994,030			2,381,900
1880 [1]	5,263,449	1,002,037		2,794,021			4,148,958
1890 [1]	7,902,299	1,517,583		3,901,589			4,349,587
1900 [1]	14,202,142	1,634,954	5,698,133	2,454,434	1,215,247	1,239,187	6,402,479
1910 [2]	10,721,012	2,249,553	4,263,359	2,193,657	1,153,916	1,039,741	7,021,945
1914 [3]	9,381,000	2,188,000		2,431,000			6,866,000
1915 [3]	9,407,000	2,235,000		2,500,000			7,285,000
1916 [3]	9,923,000	2,311,000		2,560,000			7,830,000

MOUNTAIN.

1840 [1]							
1850 [1]	45,593	15,496		380,533			8,228
1860 [1]	128,294	47,283		867,824			20,591
1870 [1]	262,422	83,419		821,313			29,002
1880 [1]	1,361,487	124,844		3,630,442			70,633
1890 [1]	3,571,958	218,689		6,286,280			171,579
1900 [1]	5,915,899	329,604	2,881,560	26,966,152	13,827,002	13,139,150	399,680
1910 [2]	6,060,725	514,466	3,265,110	22,770,291	15,262,412	7,507,879	640,911
1914 [3]	5,704,000	652,000		21,538,000			890,000
1915 [3]	6,120,000	713,000		22,299,000			1,162,000
1916 [3]	6,681,000	774,000		22,130,000			1,315,000

[1] Census, June 1. [2] Census, Apr. 15. [3] Estimate, Department of Agriculture, Jan. 1.

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TABLE 2.—*Number of cattle, sheep, and swine on farms in the United States, 1840 to 1916, by geographic divisions*—Continued.

PACIFIC.

Year.	Cattle.			Sheep (not including spring lambs, 1840 to 1890).			Swine.
	Total.	Milch cows.	Other cows and heifers.	Total.	Ewes.	Other.	
1840 [1]							
1850 [1]	304,388	13,707		32,956			33,011
1860 [1]	1,362,732	268,237		1,184,211			544,394
1870 [1]	798,849	229,356		3,130,373			581,563
1880 [1]	1,215,103	297,249		5,528,394			806,600
1890 [1]	2,142,900	502,078		4,520,719			883,432
1900 [1]	2,539,850	536,924	816,975	6,533,517	3,274,830	3,258,687	1,061,277
1910 [2]	3,204,400	826,115	1,206,106	5,502,167	2,891,677	2,700,490	1,190,263
1914 [3]	3,024,000	945,000		5,727,000			1,381,000
1915 [3]	3,202,000	1,004,000		5,609,000			1,564,000
1916 [3]	3,375,000	1,047,000		5,581,000			1,657,000

[1] Census, June 1. [2] Census, Apr. 15. [3] Estimate, Department of Agriculture, Jan. 1.

TABLE 3.—*Number of cattle, sheep, and swine per capita of the population in specified countries, by years.*

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
Algeria:		Total cows.		
1887	0.31	.....	2.8	0.02
1891	.30	.....	2.2	.02
1892	.29	.....	2.2	.02
1893	.28	.....	2.2	.02
1894	.26	.....	1.9	.02
1895	.26	.....	1.8	.02
1896	.25	.....	1.7	.02
1897	.24	.....	1.7	.02
1898	.22	.....	1.5	.02
1899	.23	.....	1.6	.02
1900	.21	.....	1.4	.02
1901	.23	0.084	1.7	.02
1902	.22	.086	1.8	.02
1903	.22	.088	1.8	.02
1904	.21	.083	1.7	.02
1905	.21	.082	1.8	.02
1906	.21	.081	1.7	.02
1907	.20	.080	1.8	.02
1908	.20	.079	1.7	.02
1909	.20	.078	1.7	.02
1910	.21	.079	1.6	.02
1911	.20	.079	1.5	.02
1912	.20	.....	1.48	.02
Argentina:		Dairy cows.		
1888 (census)	5.9	.....	18.1	.11
1895 (census, May 10)	5.5	.46	18.8	.16
1908 (census, May 30)	4.7	.35	10.9	.23
1909 (Dec. 31)	4.3	.....	10.0	.....
1910 (Dec. 31)	4.3	.....	10.8	.....
1911 (Dec. 31)	4.1	.....	11.3	.41
1912 (Dec. 31)	3.9	.....	.....	.....
1913	3.6	.....	10.2	.....
1914	3.6	.....	9.75	.43

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
Australia:		Dairy cows.		
1890	3.3	.....	31.1	0.28
1891	3.5	.....	33.5	.27
1892	3.6	.....	31.7	.25
1893	3.5	.....	29.9	.23
1894	3.6	.....	29.4	.25
1895	3.4	.....	26.0	.24
1896	3.2	.....	25.6	.23
1897	3.0	.....	22.9	.22
1898	2.8	.....	21.7	.24
1899	2.6	.....	19.5	.25
1900	2.3	.....	18.8	.25
1901	2.3	.35	19.1	.25
1902	1.8	.32	14.0	.20
1903	1.9	.33	14.6	.21
1904	2.0	.38	16.6	.27
1905	2.1	.40	18.5	.25
1906	2.3	.43	20.4	.20
1907	2.4	.45	20.9	.18
1908	2.5	.43	20.4	.16
1909	2.5	.44	21.1	.18
1910	2.7	.47	20.8	.23
1911	2.7	.48	20.9	.25
1912	2.6	.47	18.6	.19
1913	[1] 2.36	.43	17.46	.16
Austria-Hungary:		Total cows.		
Austria—				
1890 (census)	.36	.18	.13	.15
1900 (census)	.36	.18	.10	.18
1902	.34	.17	.11	.16
1910 (census)	.32	.17	.08	.23
Hungary (including Croatia and Slavonia)—				
1884	.34	.....	.68	.34
1895	.37	.....	.44	.40
1904	.34	.....	.41	.27
1906	.32	.....	.38	.25

[1] Not the sum of dairy cows and other cattle.

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TABLE 3.—*Number of cattle, sheep, and swine per capita of the population in specified countries, by years*—Continued.

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
Austria-Hungary—Continued.				
Hungary (including Croatia and Slavonia)—Contd.		Total cows.		
1907	0.33	.....	0.40	0.27
1908	.36	.....	.41	.30
1909	.35	.....	.38	.27
1911	.35	.....	.41	.36
		Dairy cows.		
Belgium:				
1895	.22	0.12	.04	.18
1900	.25	.12	.....	.15
1901	.24	.12	.....	.15
1902	.24	.12	.....	.17
1903	.25	.12	.....	.17
1904	.26	.13	.....	.17
1905	.25	.13	.....	.15
1906	.25	.12	.....	.16
1907	.25	.12	.....	.18
1908	.26	.13	.....	.16
1909	.25	.13	.....	.15
1910	.25	.....	.02	.20
1911	.24	.....	.....	.16
1912	.24	.12	.....	.18
1913	.25	.12	.....	.18
Brazil:				
1910	1.1	.....	.....	.....
1913	1.2	.....	.....	.....
1914	1.2	.....	.43	(?).74
British East Africa:[1]				
1908	.15	.....	.55	.002
1909	.14	.....	.74	.002
1910	.19	.....	.90	[2].002
1911	.25	.....	1.19	[2].002
1912	.23	.....	1.05	[2].002
British South Africa:				
1904 (census)	.78	.....	3.1	.13
1911 (census)	1.18	.....	5.4	.18
1912	.....	.....	[3]5.8	.....
		Total cows.		
Bulgaria:				
1892 (census)	.43	.....	2.1	.14
1900 (census)	.43	.....	1.9	.10
1905 (census)	.42	.14	2.0	.12
		Dairy cows.		
1910 (census)	.37	.02	2.0	.12
Canada:				
1891 (census)	.85	.38	.53	.36
1901 (census)	1.00	.43	.46	.43
1907	1.10	.42	.43	.53
1908	1.13	.44	.43	.51
1909	1.06	.42	.40	.43
1910	1.01	.41	.37	.39
1911 (census)	.91	.36	.30	.50
1912	.84	.34	.27	.45
1913	.86	.35	.27	.44
1914	.75	.33	.25	.42
Chile:				
1901	.27	.....	.87	.04
1902	.31	.....	.79	.06
1903	.27	.03	.99	.04
1904	.....	.04	.....	.....
1905	.....	.04	.....	.....
1906	.82	.03	1.39	.10
1907	.....	.....	.....	.....
1908	.70	.06	1.28	.07
1909	.....	.06	.....	.....

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
Chile—Continued.		Dairy cows.		
1910	0.48	0.05	1.06	0.05
1911	.47	.06	1.02	.05
1912	.50	.06	1.19	.05
1913	.54	.....	1.38	.05
Colombia:				
1893	.65	.....	.17	.53
1896	.77	.....	.....	.....
1909	.76	.....	.....	.....
1915	1.27	.....	.....	.....
Cuba:				
1891	1.42	.....	.05	.33
1892	1.48	.....	.05	.31
1895	1.38	.....	.04	.32
1899 (census on and off farms)	.24	.....	.01	.23
1901	.41	.....	.....	.....
1902	.57	.....	.....	.....
1903	.73	.....	.....	.....
1904	.91	.....	.....	.....
1905	1.13	.....	.....	.....
1906	1.29	.....	.....	.....
1907	1.33	.....	.....	.....
1908	1.37	.....	.....	.....
1909	1.42	.....	.....	.....
1910	1.44	.....	.....	.....
1911	1.02	.....	.....	.....
1912	1.21	.....	.....	.....
Denmark:				
1893	.77	.46	.56	.37
1898	.74	.45	.45	.49
1908	.73	.43	.35	.58
1909	.83	.47	.27	.54
		Total cows.		
Finland:				
1890 (Dec. 31)	.55	.39	.44	.08
1891 (Dec. 31)	.53	.38	.42	.08
1892 (Dec. 31)	.53	.38	.41	.07
1893 (Dec. 31)	.53	.39	.41	.07
1894 (Dec. 31)	.55	.40	.41	.07
1895 (Dec. 31)	.56	.41	.42	.08
1896 (Dec. 31)	.57	.41	.43	.08
1897 (Dec. 31)	.57	.42	.42	.09
1898 (Dec. 31)	.56	.41	.41	.08
1899 (Dec. 31)	.54	.41	.38	.08
1900 (Dec. 31)	.53	.40	.36	.08
1901 (Dec. 31)	.51	.39	.35	.07
1902 (Dec. 31)	.51	.38	.34	.08
1903 (Dec. 31)	.50	.37	.33	.08
1904 (Dec. 31)	.51	.37	.33	.08
1905 (Dec. 31)	.51	.38	.32	.08
1906 (Dec. 31)	.50	.37	.31	.07
1907 (Dec. 31)	.50	.37	.30	.08
1908 (June 25)	.....	.37	.....	.....
1909 (June 25)	.....	.36	.....	.....
1910 (June 25)	.....	.37	.....	.....
1910 (Sept.)	.51	.37	[4].42	[5].13
France:				
1890	.35	.17	.56	.16
1891	.36	.17	.57	.16
1892	.35	.17	.56	.17
1893	.32	.16	.53	.15
1894	.34	.16	.54	.16
1895	.34	.17	.55	.16
1896	.35	.16	.55	.17
1897	.35	.17	.56	.16

[1] Includes British East Africa Protectorate, Uganda Protectorate, British Somaliland, Sokotra, Zanzibar (including Pemba Island), Mauritius, the Seychelles, and other east coast not specified. (In Mauritius live stock given on sugar estates only.)

[2] Uganda omitted.

[3] Union of South Africa.

[4] Includes 540,292 under 1 year old.

[5] Includes 263,268 under 8 months old.

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TABLE 3.—*Number of cattle, sheep, and swine per capita of the population in specified countries, by years*—Continued.

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
France—Continued.		Total cows.		
1898	0.35	0.17	0.55	0.16
1899	.35	.17	.55	.16
1900	.37	.20	.52	.17
1901	.38	.21	.50	.17
1902	.38	.21	.47	.18
1903	.36	.19	.46	.19
1904	.36	.19	.45	.19
1905	.36	.19	.45	.19
1906	.36	.19	.44	.18
1907	.36	.19	.44	.18
1908	.36	.19	.44	.18
1909	.36	.19	.44	.19
1910	.37	.19	.43	.17
1911	.36	.19	.41	.17
1912	.37	.20	.42	.17
1913	.37	.20	.41	.18
German East Africa:			Sheep and goats.	
1903	.08	.....	.44	[1]
1904	.08	.....	.52	[1]
1905	.08	.....	.50	[1]
1911	.20	.....	.38	.....
Germany:		Total cows and heifers.	Sheep.	
1892	.35	.20	.27	.24
1897	.35	.....	.20	.27
1900	.34	.19	.17	.30
1904	.33	.18	.13	.32
1907	.33	.18	.12	.36
		Dairy cows.		
1912	.31	.15	.09	.33
1913	.31	.....	.08	.38
Greece:				
1902	.16	.....	1.80	.03
1912	.15	.....	1.47	.03
1913	.....	.....	1.46	.02
Italy:				
1890	.17	.....	.23	.06
1905	.17	.....	.....	.07
1908	.18	.....	.33	.07
Japan:		Total cows.		
1890	.03	.02	.....	.....
1891	.03	.02	.....	.....
1892	.03	.02	.....	.....
1893	.03	.02	.....	.....
1894	.03	.02	.....	.....
1895	.03	.02	.....	.....
1896	.03	.02	.....	.....
1897	.03	.02	.....	.....
1898	.03	.02	.....	.....
1899	.03	.02	[1]	.005
1900	.03	.02	[1]	.004
1901	.03	.02	[1]	.004
1902	.03	.02	[1]	.005
1903	.03	.02	[1]	.005
1904	.03	.02	[1]	.004
1905	.02	.02	[1]	.005
1906	.02	.02	[1]	.006
1907	.03	.02	[1]	.007
1908	.03	.02	[1]	.006

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
Japan—Continued.		Total cows.		
1909	0.03	0.02	[1]	0.006
1910	.03	.02	[1]	.005
1911	.03	.02	[1]	.006
1912	.03	.02	[1]	.006
Madagascar:				
1898	.89	.....	.....	.....
1904	.89	.....	.....	.....
1905	.98	.....	.....	.....
1906	1.40	.....	.....	.....
1907	1.29	.....	.....	.....
1908	1.29	.....	0.09	.16
1909	1.37	.....	.08	.14
1910	1.47	.....	.13	.20
1911	1.47	.....	.....	.....
1912	1.70	.....	.....	.....
Mexico:				
1902 (census, June 30)	.37	.....	.24	.04
Netherlands:		Dairy cows.		Over 2 months old.
1890 (Dec.)	.34	.20	.18	.13
1891 (Dec.)	.33	.19	.17	.12
1892 (Dec.)	.33	.19	.16	.12
1893 (Dec.)	.31	.19	.15	.12
1894 (Dec.)	.31	.19	.14	.13
1895 (Dec.)	.32	.19	.14	.14
1896 (Dec.)	.32	.19	.14	.13
1897 (Dec.)	.32	.19	.15	.13
1898 (Dec.)	.32	.19	.15	.14
1899 (Dec.)	.32	.19	.15	.14
1900 (Dec.)	.32	.19	.15	.14
1901 (Dec.)	.31	.18	.14	.15
1902 (Dec.)	.31	.18	.13	.15
1903 (Dec.)	.31	.18	.12	.16
1904 (Dec.)	.31	.18	.11	.16
1910 (June)	.34	.18	.15	All ages. .21
New Zealand:				
1891	1.24	.33	28.2	.35
1892–93	1.24	.....	28.6	.....
1893–94	1.32	.....	28.8	.....
1894–95	1.41	.37	29.5	.....
1895–96	1.50	.40	28.4	.34
1896–97	1.59	.42	26.8	.29
1897–98	1.66	.45	27.0	.26
1898–99	1.62	.45	26.5	.26
1899–1900	1.62	.47	25.6	.33
1900–1901	1.64	.48	25.2	.33
1901–2	1.73	.48	25.7	.28
1902–3	1.81	.53	25.2	.24
1903–4	1.91	.56	22.8	.27
1904–5	2.03	.58	21.3	.30
1905–6	2.05	.59	21.7	.28
1906–7	2.04	.60	22.1	.27
1907–8	1.95	.58	22.6	.26
1908–9	1.85	.56	23.4	.26
1909–10	.....	.....	23.9	.....
1910–11	2.01	.63	24.2	.35
1911–12	.....	.....	23.4	.....
1912–13	.....	.....	22.6	.....
1913–14	.....	.....	22.7	.....

[1] Less than 0.005 of 1 per cent.

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TABLE 3.—*Number of cattle, sheep, and swine per capita of the population in specified countries, by years*—Continued.

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
		Total cows and heifers.		
Norway:				
1890	0.50	0.35	0.71	0.06
1900	.42	.31	.45	.07
1907	.47	.31	.60	.14
1910	.47	.....	.58	.14
Paraguay:				
1890	2.2	.....	.16	.03
1896	4.2	.....	.26	.08
1897	3.3	.....	.22	.07
1899 (Census)	3.6	.....	.34	.04
1900	4.2	.....	.33	.04
1901	5.3	.....	.....	.....
1902	4.6	.....	.....	.....
1908	7.3	.....	.....	.....
1912	4.4	.....	.....	.....
		Dairy cows.		
Portugal:				
1906	.13	(?)	.59	.21
1908	.16	(?)	.59	.25
		Total cows and heifers.		
Roumania:				
1890	.47	.15	.94	.17
1896	.37	.....	1.20	.19
		Milch cows.		
1900	.42	.06	.94	.28
1907	.....	.....	.76	.17
1911	.38	.....	.74	.14
Russia, Asiatic:				
1905	.26	.....	.52	.04
1906	.27	.....	.56	.04
1907	.59	.....	1.45	.06
1908	.57	.....	1.50	.06
1909	.58	.....	1.39	.07
1910	.59	.....	1.26	.07
1911	.54	.....	1.27	.06
Russia, European (including Poland):				
1890	.32	.....	.56	.12
1891	.31	.....	.47	.12
1892	.29	.....	.43	.11
1894	.28	.....	.42	.10
1895	.27	.....	.42	.10
1896	.32	.....	.49	.14
1897	.32	.....	.47	.14
1898	.31	.....	.47	.13
1899	.36	.....	.45	.12
1900	.31	.....	.46	.12
1901	.31	.....	.45	.12
1902	.31	.....	.44	.12
1903	.30	.....	.42	.11
1904	.28	.....	.40	.11
1905[1]	.32	.....	.43	.10
1906[1]	.30	.....	.39	.09
1907[1]	.27	.....	.38	.10
1908[1]	.26	.....	.34	.10
1909[1]	.26	.....	.34	.09
1910[1]	.26	.....	.35	.10
1911[1]	.26	.....	.33	.10
1912	.25	.....	[2].31	.09
1913[1]	.25	.....	[2].29	.09

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
		Total cows.		
Servia:				
1890	0.38	.....	1.37	0.42
1895	.40	.....	1.34	.39
1900	.38	0.12	1.23	.38
1905	.36	.12	1.18	.34
1910	.33	.11	1.31	.30
Spain:				
1891	.12	.....	.75	.11
1905	.11	.....	.68	.09
1906	.13	.....	.70	.11
1907	.11	.....	.71	.11
1908	.13	.....	.83	.11
1909	.12	.....	.80	.12
1910	.12	.....	.77	.12
1911	.13	.....	.80	.13
1912	.13	.....	.80	.13
Sweden:				
1890	.50	.33	.28	.13
1891	.50	.33	.28	.14
1892	.52	.34	.28	.14
1893	.51	.34	.27	.15
1894	.52	.35	.27	.16
1895	.52	.35	.27	.16
1896	.51	.35	.26	.16
1897	.51	.34	.26	.16
1898	.51	.35	.26	.16
1899	.51	.35	.25	.16
1900	.50	.34	.25	.16
1901	.50	.34	.24	.16
1902	.50	.34	.23	.16
1903	.50	.34	.22	.16
1904	.48	.34	.21	.15
1905	.48	.33	.20	.16
1906	.49	.34	.20	.16
1907	.49	.34	.19	.16
1908	.49	.34	.19	.16
1909	.50	.34	.19	.17
1910	.50	.34	.18	.17
1911	.48	.33	.17	.17
		Total cows and heifers.		
Switzerland:				
1886	.42	.29	.12	.14
1896	.41	.28	.09	.18
1901	.40	.29	.07	.17
1903	.61	.....	.....	.....
1906	.42	.30	.06	.15
1911	.38	.21	.04	.15
United Kingdom:				
1890	.29	.11	.84	.12
1891	.30	.11	.89	.11
1892	.30	.11	.88	.09
1893	.29	.10	.83	.09
1894	.28	.10	.77	.10
1895	.27	.10	.76	.11
1896	.28	.10	.78	.11
1897	.28	.10	.76	.09
1898	.28	.10	.77	.09
1899	.28	.10	.78	.10
1900	.28	.10	.75	.09
1901	.28	.10	.74	.08
1902	.27	.10	.72	.09
1903	.27	.10	.70	.10
1904	.27	.10	.68	.10
1905	.27	.10	.68	.08
1906	.27	.10	.67	.08

[1] Includes Northern Caucasia.

[2] Including goats.

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TABLE 3.—*Number of cattle, sheep, and swine per capita of the population in specified countries, by years*—Continued.

Country and year.	Cattle.		Sheep.	Swine.
	Total.	Cows.		
United Kingdom—Continued.		Total cows and heifers.		
1907	0.27	0.10	0.69	0.09
1908	.27	.10	.71	.09
1909	.26	.10	.72	.08
1910	.26	.10	.69	.08
1911	.26	.10	.67	.09
1912	.26	.10	.63	.09
1913	.26	.09	.60	.07
United States:				
On farms and ranges—		Milch cows.		
1840 (Census, June 1)	.88	.....	1.13	1.54
1850 (Census, June 1)	.77	.28	.94	1.31
1860 (Census, June 1)	.81	.27	.71	1.07
1870 (Census, June 1)	.62	.23	.74	.65
1880 (Census, June 1)	.72	.25	.70	.95
1890 (Census, June 1)	.82	.26	.57	.91
1900 (Census, June 1)	.89	.23	.81	.83
1901 (Est., Dpt. Agr., Jan. 1	.80	.22	.77	.73
1902 (Est., Dpt. Agr., Jan. 1)	.78	.21	.78	.61
1903 (Est., Dept. Agr., Jan. 1)	.76	.21	.79	.58
1904 (Est., Dpt. Agr., Jan. 1)	.74	.21	.63	.57
1905 (Est., Dpt. Agr., Jan. 1)	.73	.21	.54	.56
1906 (Est., Dpt. Agr., Jan. 1)	.78	.23	.59	.61
1907 (Est., Dept. Agr., Jan. 1)	.83	.24	.61	.63
1908 (Est., Dpt. Agr., Jan. 1)	.80	.24	.61	.63
1909 (Est., Dpt. Agr., Jan. 1)	.79	.24	.62	.60
1910 (Census, Apr. 15)	.67	.22	.57	.63
United States—Con.		Milch cows.		
1911 (Est., Dpt. Agr., Jan. 1)	0.65	0.22	0.57	0.70
1912 (Est., Dpt. Agr., Jan. 1)	.61	.22	.55	.69
1913 (Est., Dpt. Agr., Jan. 1)	.58	.21	.53	.63
1914 (Est., Dpt. Agr., Jan. 1)	.57	.21	.50	.60
1915 (Est., Dpt. Agr., Jan. 1)	.58	.20	.50	.65
1916 (Est., Dpt. Agr., Jan. 1)	.60	.22	.48	.67
On and off farms and ranges—				
1900 (Census, June 1)	.91	.24	.81	.85
1910 (Census, Apr. 15)	.69	.24	.57	.65
Uruguay:		Dairy cows.		
1893	7.3	.....	16.4	.04
1894	7.0	.....	16.5	.03
1895	6.6	.....	18.1	.04
1896	7.2	.....	20.0	.04
1897	5.9	.....	17.2	.04
1898	5.7	.....	18.0	.04
1899	5.8	.....	16.9	.04
1900 (Census)	7.5	.....	20.3	.10
1900	7.0	.....	18.8	.05
1901	6.6	.....	18.3	.05
1902	7.1	.....	18.1	.05
1903	6.8	.....	18.2	.05
1904	7.0	.....	13.9	.04
1905	5.6	.....	13.0	.03
1908 (Census, Oct. 12)	7.9	.54	25.2	.17
Venezuela:			Sheep and goats.	
1888[1]	3.73	.....	2.52	.85
1894[2]	.98	.....	.06	.68
1895[1]	1.87	.....	.....	.....
1900[1]	.80	.....	.07	.64
1909[3]	2.23	.....	.60	.60

[1] Statesman's Yearbook.
[2] Annual statement of the United States of Venezuela, p. 103.
[3] Bulletin Bureau of American Republics, August, 1910.

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TABLE 4.—*Total domestic exports from nine principal countries of live meat animals, meat, and meat products, by years.*

[The countries included are Argentina, Australia, Canada, Denmark, Mexico, New Zealand, Russia, United States, Uruguay. Substantially the export trade of the surplus countries of the world.]

Year.	Live animals.			Meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Beef and beef products.	
						Total.	Beef, fresh, chilled, and frozen.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	1,096,687	1,493,679	104,316	2,733,754,118	942,323,176	1,102,280,609	265,013,026
1896	1,267,138	1,890,526	116,609	2,801,899,217	931,444,121	1,059,835,591	285,990,057
1897	1,204,549	1,473,847	116,008	3,010,949,388	1,014,388,550	1,112,648,711	368,726,371
1898	1,283,781	1,429,868	90,667	3,346,411,777	1,159,385,268	1,052,456,616	363,053,894
1899	1,110,496	1,302,112	109,209	3,537,421,809	1,199,133,893	1,138,788,018	400,626,919
1900	1,014,777	937,365	122,501	3,478,794,344	1,121,023,201	1,239,360,613	514,506,225
1901	998,919	919,340	97,318	3,455,316,392	1,073,488,654	1,296,834,982	566,238,293
1902	930,815	1,090,371	89,774	3,354,296,931	969,948,537	1,238,340,415	567,884,401
1903	1,068,761	1,054,042	102,253	3,065,258,527	852,038,232	1,160,730,498	518,795,757
1904	1,090,060	905,405	78,340	3,379,040,304	1,035,489,820	1,316,100,513	571,473,456
1905	1,150,560	852,709	114,964	3,478,243,860	1,084,341,806	1,378,473,273	633,428,417
1906	1,048,935	764,318	169,394	3,777,537,182	1,280,175,570	1,475,503,027	677,241,744
1907	800,226	786,669	103,522	3,613,051,292	1,193,679,974	1,443,864,749	678,701,925
1908	821,630	723,862	119,919	3,601,596,141	1,167,003,843	1,423,905,646	679,707,038
1909	845,328	582,071	116,350	3,473,171,031	1,097,338,173	1,466,393,725	713,100,114
1910	730,112	497,717	90,633	3,351,061,037	912,776,159	1,527,261,878	801,575,550
1911 [1]	644,582	330,993	97,424	3,457,882,252	1,069,229,215	1,492,203,282	868,357,425
1912 [2]	808,276	687,354	132,086	3,562,872,154	1,111,442,006	1,579,830,112	913,323,711
1911 [3]	788,516	534,881	98,000	3,661,845,725	1,110,909,003	1,649,089,996	868,357,425
1912 [4]	808,647	695,263	132,782	3,861,011,187	1,158,043,974	1,648,908,912	940,630,879

Year.	Meat and meat products—Continued.					
	Beef and beef products—Continued.		Pork and pork products.			
	Fats and oils.	Other.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	460,851,252	376,416,331	1,279,875,532	5,468,810	481,471,924	792,934,798
1896	414,775,637	359,069,897	1,366,019,177	2,951,211	516,668,484	846,399,482
1897	438,186,207	305,736,133	1,519,232,040	4,956,242	576,202,343	938,073,455
1898	443,173,449	246,229,273	1,890,209,883	18,403,469	716,211,819	1,155,594,595
1899	478,256,060	259,905,039	1,969,295,937	45,609,575	720,877,833	1,202,808,529
1900	452,800,932	272,053,456	1,826,070,274	31,302,509	668,222,269	1,126,545,496
1901	454,203,579	276,393,110	1,722,723,253	38,809,293	619,285,075	1,064,628,885
1902	406,009,939	264,446,075	1,625,902,127	55,572,472	563,938,598	1,006,391,057
1903	354,232,243	287,702,438	1,388,598,333	28,415,502	497,805,989	862,376,842
1904	468,753,970	275,873,087	1,499,752,084	25,594,148	566,691,050	907,466,886
1905	467,653,417	277,391,439	1,545,393,383	23,228,474	616,135,109	906,029,800
1906	531,336,697	266,924,586	1,776,486,978	24,080,366	745,427,353	1,006,979,259
1907	558,496,137	206,666,687	1,590,254,508	19,736,684	630,253,597	940,264,227
1908	555,910,705	188,287,903	1,602,227,774	23,209,226	607,565,138	971,453,410
1909	558,046,450	195,247,161	1,360,193,948	16,644,248	533,272,843	810,276,857
1910	535,360,897	190,325,431	998,531,828	10,080,646	370,097,182	618,354,000
1911 [1]	543,868,802	79,977,055	1,221,546,525	10,206,575	519,688,733	691,651,217
1912 [2]	512,664,400	153,842,001	1,433,986,065	12,586,990	598,777,606	822,621,469
1911 [3]	585,548,590	195,183,981	1,221,554,263	10,206,575	519,688,733	691,658,955
1912 [4]	553,262,160	155,015,873	1,435,769,889	13,809,022	599,110,134	822,850,733

[1] Uruguay omitted.
[2] New Zealand omitted.
[3] Including Uruguay for 1910.
[4] Including New Zealand for 1911.

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TABLE 4.—*Total domestic exports from nine principal countries of live meat animals; meat, and meat products, by years.*—Continued.

Year.	Meat and meat products—Continued.				
	Mutton.	Unidentified meat and meat products.			
		Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	282,694,783	68,903,194	4,739,733	.....	64,163,461
1896	307,462,693	68,581,756	5,809,251	.....	62,772,505
1897	324,188,422	54,880,215	4,686,851	.....	50,193,364
1898	350,082,872	53,662,406	3,351,497	.....	50,310,909
1899	371,855,749	57,482,105	2,725,213	.....	54,756,892
1900	345,789,024	67,594,433	3,007,790	.....	64,586,643
1901	364,086,546	71,671,611	4,942,731	.....	66,728,880
1902	414,467,009	75,587,380	7,911,116	.....	67,676,264
1903	443,695,112	72,234,584	12,242,153	.....	59,992,431
1904	454,001,269	109,186,438	13,429,273	44,800	95,712,365
1905	424,750,101	129,627,103	24,079,242	553,280	104,994,581
1906	430,601,404	94,945,773	23,247,466	3,411,520	68,286,787
1907	481,175,673	97,756,362	33,327,274	4,930,240	59,498,848
1908	459,416,044	116,046,677	44,694,889	3,528,000	67,823,788
1909	497,789,640	148,793,718	39,662,015	6,018,880	103,112,823
1910	594,433,368	230,833,963	51,780,907	7,318,080	171,734,976
1911 [1]	533,114,627	211,017,818	40,026,793	5,671,680	165,319,345
1912 [2]	277,343,422	271,712,555	95,704,179	.....	176,008,376
1911 [3]	541,206,677	249,994,789	60,807,644	5,671,680	183,515,465
1912 [4]	488,938,638	287,393,748	96,840,419	5,671,680	184,881,649

[1] Uruguay omitted.
[2] New Zealand omitted.
[3] Including Uruguay for 1910.
[4] Including New Zealand for 1911.

TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years.*

ARGENTINA.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	[a] Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895..	408,126	429,949	5,572	312,781,601	89,499,929	214,448,799	3,498,870	89,499,929	121,450,000
1896..	382,539	512,061	374	291,825,156	75,280,360	183,094,638	6,606,278	75,280,360	101,208,000
1897..	238,121	504,255	666	278,388,508	69,529,990	158,770,990	9,350,000	69,529,990	79,891,000
1898..	359,296	577,899	587	268,803,745	64,687,422	126,657,422	12,935,000	64,687,422	49,035,000
1899..	312,150	543,462	1,830	251,123,014	53,242,000	115,507,000	20,016,000	53,242,000	42,249,000
1900..	150,550	198,102	40	279,816,878	54,765,575	145,241,575	54,212,000	54,765,575	36,264,000
1901..	119,189	25,749	250	376,635,213	73,576,436	226,135,436	98,996,000	73,576,436	53,563,000
1902..	118,303	122,503	532	504,606,735	108,349,904	311,884,904	154,363,000	108,349,904	49,172,000
1903..	181,860	167,747	54	482,546,922	80,807,263	289,168,263	179,721,000	80,807,263	28,640,000
1904..	129,275	28,128	73	547,074,786	80,257,373	321,597,373	215,489,000	80,257,373	25,851,000
1905..	262,681	120,166	95	693,928,433	100,938,105	493,676,572	336,988,542	100,938,105	55,749,925
1906..	71,106	102,916	49	583,125,619	61,200,853	410,539,564	339,087,321	61,200,853	10,251,390
1907..	74,841	110,567	4	586,728,877	75,064,734	403,264,782	304,723,399	75,064,734	23,476,649
1908..	60,916	103,792	26	734,343,145	106,775,270	520,009,683	398,623,497	106,724,505	14,661,681
1909..	132,450	88,636	33	818,647,863	130,703,494	620,716,481	464,415,452	130,678,143	25,622,886
1910..	89,733	77,180	.....	955,269,508	140,961,648	721,087,832	559,325,012	140,945,997	20,816,823
1911..	184,112	110,690	2	1,167,650,439	178,251,831	804,707,582	689,753,109	178,233,954	26,720,519
1912..	261,416	104,898	9	1,203,958,286	181,104,841	956,400,302	755,849,315	181,097,597	19,453,390
1913..	224,911	103,997	62	1,148,815,536	153,825,028	909,832,656	807,388,453	153,824,217	8,619,986

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TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years*—Continued.

ARGENTINA—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895..	92,334,000	.....	.....	.....	.....	5,998,802	888,460	.....	5,110,342
1896..	99,439,000	.....	.....	.....	.....	9,291,518	1,333,963	.....	7,957,555
1897..	112,202,000	.....	.....	.....	.....	7,415,516	1,537,885	.....	5,877,631
1898..	131,909,000	.....	.....	.....	.....	10,237,323	2,140,553	.....	8,096,770
1899..	124,841,000	.....	.....	.....	.....	10,775,014	2,033,000	.....	8,742,014
1900..	124,367,000	.....	.....	.....	.....	10,208,303	2,401,000	.....	7,807,303
1901..	138,920,000	.....	.....	.....	.....	11,579,777	3,109,000	.....	8,470,777
1902..	176,531,000	.....	.....	.....	.....	16,190,831	5,556,000	.....	10,634,831
1903..	172,271,000	.....	.....	.....	.....	21,107,659	6,918,000	.....	14,189,659
1904..	195,365,000	.....	.....	.....	.....	30,112,413	9,235,000	.....	20,877,413
1905..	172,722,615	.....	.....	.....	.....	27,519,246	12,085,617	.....	15,433,629
1906..	148,563,585	.....	.....	.....	.....	24,022,470	13,575,927	.....	10,446,543
1907..	153,847,500	.....	.....	.....	.....	29,616,595	15,269,329	.....	14,347,266
1908..	173,824,112	87,502	11,911	50,765	24,826	40,421,848	25,112,808	.....	15,309,040
1909..	146,595,223	25,351	.....	25,351	.....	51,310,808	22,019,086	.....	29,291,722
1910..	165,569,122	76,635	2,227	35,651	38,757	68,535,919	24,475,048	.....	44,060,871
1911..	189,410,539	17,877	.....	17,877	.....	83,514,441	32,114,538	.....	51,399,903
1912..	154,707,805	7,244	.....	7,244	.....	92,842,935	34,526,241	.....	58,316,694
1913..	101,252,869	811	.....	811	.....	77,729,200	30,875,423	.....	46,853,777

AUSTRALIA.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Lbs.*
1895....	5,166	8,189	149	364,541,353	181,539,882	250,092,917	68,821,589	181,271,328	.....
1896....	2,827	5,713	276	278,687,901	104,750,019	156,269,674	51,698,410	104,571,264	.....
1897....	1,951	5,620	138	257,015,758	102,295,092	165,602,505	63,375,513	102,226,992	.....
1898....	2,280	4,686	256	240,401,153	83,713,967	148,297,764	64,669,940	83,627,824	.....
1899....	2,169	20,792	231	280,180,074	94,834,971	173,891,297	79,151,169	94,740,128	.....
1900....	6,482	21,716	280	281,254,350	79,258,161	175,322,224	96,216,064	79,106,160	.....
1901....	2,413	12,094	157	237,785,209	65,707,295	156,321,880	90,706,344	65,615,536	.....
1902....	4,003	24,261	31	184,676,396	37,900,525	117,291,776	79,453,248	37,838,528	.....
1903....	939	18,106	.....	137,161,376	28,206,643	88,964,538	61,173,530	27,791,008	.....
1904....	770	7,743	.....	160,710,871	58,352,204	94,580,321	37,090,945	57,489,376	.....
1905....	1,280	12,090	322	230,611,401	81,009,528	123,471,648	43,525,086	79,946,562	.....
1906....	552	17,979	220	225,828,314	78,913,970	119,925,201	41,561,252	78,363,949	.....
1907....	687	11,290	185	250,455,327	77,806,379	129,398,912	52,050,592	77,348,320	.....
1908....	953	13,019	117	215,063,117	68,191,854	108,392,354	40,711,516	67,680,838	.....
1909....	975	5,315	229	321,345,270	107,238,743	176,763,596	71,142,296	105,621,301	.....
1910....	3,745	13,144	303	484,870,208	145,514,906	251,837,127	109,427,528	142,409,599	.....
1911....	9,964	24,198	385	444,395,724	156,077,354	261,464,562	108,786,417	1524678,145	.....
1912....	16,083	34,101	609	423,353,746	122,668,530	262,788,129	142,210,076	120,578,053	.....

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TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years*—Continued.

AUSTRALIA—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895....	65,639,884	869,368	416,095	268,554	184,719	47,939,184	.....	.....	47,939,184
1896....	85,270,408	353,897	26,730	178,755	148,412	36,793,922	.....	.....	36,793,922
1897....	63,263,771	227,440	30,408	68,100	128,932	27,922,042	.....	.....	27,922,042
1898....	64,323,705	260,827	11,641	86,143	163,043	27,518,857	.....	.....	27,518,857
1899....	69,253,689	549,732	8,289	94,843	446,600	36,485,356	.....	.....	36,485,356
1900....	66,850,998	909,312	44,400	152,001	712,911	38,171,818	.....	.....	38,171,818
1901....	54,176,437	697,326	320,320	91,759	285,247	26,589,566	.....	.....	26,589,566
1902....	44,109,912	908,360	659,124	61,997	187,739	22,365,848	.....	.....	22,365,848
1903....	35,753,124	916,875	277,310	415,635	223,930	11,526,339	.....	.....	11,526,339
1904....	47,863,532	1,652,694	420,783	862,828	369,083	16,614,324	.....	.....	16,614,324
1905....	86,858,344	4,371,598	2,824,016	1,062,966	484,616	15,909,311	1,392,867	.....	14,517,444
1906....	90,602,385	4,552,704	3,472,224	550,021	530,459	10,658,024	1,109,585	.....	9,548,439
1907....	109,227,757	2,320,068	1,446,758	458,059	415,251	9,508,590	894,413	.....	8,614,177
1908....	91,607,614	1,726,836	826,102	511,016	389,718	13,336,313	661,419	.....	12,674,894
1909....	116,915,639	2,408,343	394,559	1,617,442	396,342	25,257,692	1,511,811	.....	23,745,881
1910....	190,229,330	5,451,079	741,410	3,105,307	1,604,362	37,352,672	2,640,411	.....	34,712,261
1911....	129,569,295	7,378,521	1,641,013	3,399,209	2,338,299	45,983,346	4,025,785	.....	41,957,561
1912....	115,371,981	5,161,286	897,929	2,090,477	2,172,880	40,032,350	4,797,792	.....	35,234,558

CANADA.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895....	93,802	291,751	805	52,535,381	1,300,603	5,647,609	.....	24,017	5,673,592
1896....	104,451	391,490	833	66,505,302	193,596	431,505	.....	20,037	411,468
1897....	161,369	313,410	988	81,518,685	423,575	1,855,592	.....	195,372	1,660,220
1898....	213,010	351,789	814	95,138,456	575,322	1,220,400	.....	322,200	898,200
1899....	211,847	405,322	814	124,667,871	3,352,097	2,059,903	.....	1,696,093	363,810
1900....	205,524	459,944	1,634	145,021,593	1,685,613	4,335,823	.....	1,488,643	2,847,180
1901....	169,279	394,681	944	126,028,723	2,579,202	11,443,022	.....	1,732,564	9,710,458
1902....	184,473	348,443	5,778	123,795,440	542,954	4,551,291	.....	223,878	4,327,413
1903....	176,780	401,443	23,986	155,756,828	2,749,809	2,714,009	.....	335,834	2,378,175
1904....	157,417	364,053	1,351	160,967,656	644,717	3,113,541	.....	150,781	2,962,760
1905....	167,102	288,313	2,806	165,443,909	1,962,320	2,009,663	.....	678,131	1,331,532
1906....	176,030	244,262	783	122,746,499	649,691	3,407,754	.....	519,792	2,887,962
1907....	162,141	254,665	454	84,284,365	374,620	1,633,332	.....	178,121	1,455,211
1908....	150,993	227,001	942	108,794,850	1,694,882	2,596,557	.....	343,482	2,253,075
1909....	162,945	118,896	366	88,254,588	900,728	2,114,866	.....	543,281	1,571,585
1910....	157,386	111,107	390	62,467,748	1,798,164	1,633,281	.....	314,884	1,318,397
1911....	124,923	46,597	3,335	64,417,320	209,079	1,004,024	.....	29,613	974,411
1912....	61,517	21,418	1,358	76,867,239	1,816,989	2,566,756	.....	1,617,985	948,771
1913....	44,296	13,760	654	46,257,175	2,042,071	3,566,412	.....	1,995,433	1,570,979

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TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years*—Continued.

CANADA—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	112,316	41,930,348	.....	1,276,586	40,653,762	4,795,108	.....	.....	4,795,108
1896	150,013	55,252,593	.....	173,559	55,079,034	10,671,191	.....	.....	10,671,191
1897	201,515	70,128,453	.....	228,203	69,900,250	9,333,125	.....	.....	9,333,125
1898	138,056	87,164,212	.....	253,122	86,911,090	6,615,788	.....	.....	6,615,788
1899	139,882	120,463,777	.....	1,656,004	118,807,773	2,004,309	.....	.....	2,004,309
1900	42,750	136,238,394	.....	196,970	136,141,424	4,304,626	.....	.....	4,304,626
1901	76,875	107,138,265	.....	846,638	106,291,627	7,370,561	.....	.....	7,370,561
1902	82,823	108,922,040	.....	319,076	108,602,964	10,239,286	.....	.....	10,239,286
1903	84,212	145,702,377	.....	2,413,975	143,288,402	7,256,230	.....	.....	7,256,230
1904	89,924	132,727,510	.....	493,936	132,233,574	25,036,681	.....	.....	25,036,681
1905	160,702	123,220,938	.....	1,284,189	121,936,749	40,052,606	.....	.....	40,052,606
1906	105,062	103,813,623	.....	129,899	103,683,724	15,420,060	.....	.....	15,420,060
1907	64,249	77,886,341	.....	196,499	77,689,842	4,700,443	.....	.....	4,700,443
1908	341,662	97,296,499	.....	1,351,400	95,945,099	8,560,132	.....	.....	8,560,132
1909	39,030	76,392,715	.....	357,447	76,035,268	9,707,977	.....	.....	9,707,977
1910	70,232	50,919,950	.....	1,483,280	49,436,670	9,844,285	.....	.....	9,844,285
1911	17,865	60,471,568	.....	179,466	60,292,102	2,924,363	.....	.....	2,924,363
1912	49,107	62,738,042	.....	199,004	62,539,038	11,513,334	.....	.....	11,513,334
1913	45,914	39,257,015	.....	46,638	39,210,377	3,387,834	.....	.....	3,387,834

DENMARK.

Year.	Bacon and ham.	Year.	Bacon and ham.	Year.	Bacon and ham.	Year.	Bacon and ham.
	Pounds.		*Pounds.*		*Pounds.*		*Pounds.*
1895	134,250,000	1900	137,160,000	1905	183,813,097	1909	212,081,197
1896	164,400,000	1901	131,580,000	1906	184,593,389	1910	208,403,924
1897	131,990,000	1902	156,040,000	1907	227,063,893	1911	245,903,068
1898	128,530,000	1903	181,050,000	1908	253,986,664	1912	263,466,675
1899	156,700,000	1904	202,820,000				

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TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years*—Continued.

MEXICO.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	154,138	6,616	3,686	172,706	139,368	.....	.....	.....	.....
1896	238,998	5,861	8,899	242,963	211,825	.....	.....	.....	.....
1897	313,633	122,843	8,810	68,788	36,806	.....	.....	.....	.....
1898	227,366	68,304	7,805	92,710	45,732	.....	.....	.....	.....
1899	160,028	3,842	8,376	707,262	565,958	.....	.....	.....	.....
1900	184,165	13,836	2,027	71,264	9,215	.....	.....	.....	.....
1901	197,624	4,039	3,727	54,988	3,336	.....	.....	.....	.....
1902	166,479	6,821	2,260	54,212	5,512	.....	.....	.....	.....
1903	213,993	7,624	1,388	44,176	615	.....	.....	.....	.....
1904	107,418	843	169	65,797	1,559	.....	.....	.....	.....
1905	99,182	5,255	449	101,288	89,584	172	.....	172	.....
1906	117,763	20,700	1,189	179,743	135,572	4,590	.....	4,590	.....
1907	45,990	9,096	3,627	63,951	1,080	.....	.....	.....	.....
1908	84,169	36,497	5,826	28,378	18,924	18,924	.....	18,924	.....
1909	136,051	7,974	4,365	15,822	6,492	5,412	.....	5,412	.....
1910	193,326	26,079	4,639	1,580,831	1,402	467	.....	467	.....
1911	170,242	6,677	4,566	401,921	5,212	4,469	.....	4,469	.....
1912	282,452	23,000	2,823	100,609	9,971	639	.....	639	.....

Year.	Meat and meat products—Continued.								
		Pork and pork products.				Unidentified meat and meat products.			
	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	139,368	.....	139,368	.....	33,338	.....	.....	33,338
1896	.....	211,825	.....	211,825	.....	31,138	.....	.....	31,138
1897	.....	36,806	.....	36,806	.....	31,982	.....	.....	31,982
1898	.....	45,732	.....	45,732	.....	46,978	.....	.....	46,978
1899	.....	565,958	.....	565,958	.....	141,304	15,944	.....	125,360
1900	.....	9,215	.....	9,215	.....	62,049	.....	.....	62,049
1901	.....	3,336	.....	3,336	.....	51,652	.....	.....	51,652
1902	.....	5,512	.....	5,512	.....	48,700	.....	.....	48,700
1903	.....	615	.....	615	.....	43,561	.....	.....	43,561
1904	.....	1,559	.....	1,559	.....	64,238	.....	.....	64,238
1905	.....	89,412	.....	89,412	.....	11,704	9,352	.....	2,352
1906	.....	130,982	.....	130,982	.....	44,171	17,888	.....	26,283
1907	.....	1,080	.....	1,080	.....	62,871	51,938	.....	10,933
1908	.....	.....	.....	.....	.....	9,454	8,508	.....	946
1909	.....	1,080	.....	1,080	.....	9,330	4,780	.....	4,550
1910	.....	935	.....	935	.....	1,579,429	789,849	.....	789,580
1911	.....	743	.....	743	.....	396,709	321,969	.....	74,740
1912	.....	9,332	.....	9,332	.....	90,638	40,911	.....	49,727

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TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years*—Continued.

NEW ZEALAND.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	183	11,685	129	156,675,680	29,549,520	31,459,232	1,354,080	29,518,720	586,432
1896	323	3,729	244	153,474,048	24,935,344	28,454,048	2,902,144	24,924,480	627,424
1897	407	3,009	217	191,196,600	34,764,912	40,990,320	5,604,928	34,742,400	642,992
1898	472	6,270	288	206,681,660	38,895,024	50,266,384	10,680,880	38,881,920	703,584
1899	597	4,362	183	238,388,858	37,946,272	58,046,576	19,319,776	37,925,440	801,360
1900	616	3,840	462	234,637,338	41,218,352	77,085,904	34,999,552	41,191,360	894,992
1901	290	3,668	75	236,208,255	37,633,120	63,186,480	24,787,616	37,560,320	838,544
1902	3,062	48,047	326	279,443,858	47,606,152	80,634,736	32,243,680	47,494,720	896,336
1903	366	21,763	266	302,073,867	44,470,272	68,391,904	23,105,264	44,457,280	829,360
1904	480	7,430	323	271,221,953	36,139,712	56,219,296	19,313,840	36,087,296	818,160
1905	595	11,729	288	222,027,688	35,721,280	52,704,624	16,421,552	35,168,000	1,115,072
1906	477	13,324	254	268,167,561	42,381,136	68,402,768	28,538,944	38,969,280	894,544
1907	322	13,762	248	308,083,891	46,467,904	83,130,432	40,276,432	41,536,320	1,317,680
1908	183	6,316	271	276,864,664	41,818,336	78,420,384	39,217,920	38,194,240	1,008,224
1909	299	6,987	630	343,114,018	54,401,872	104,329,120	54,589,696	48,207,040	1,532,384
1910	227	6,335	729	357,476,151	58,681,840	109,342,800	57,093,344	50,942,080	1,307,376
1911	371	7,909	696	298,139,033	46,601,968	69,078,800	27,307,168	40,597,760	1,173,872

Year.	Meat and meat products—Continued.								
		Pork and pork products.				Unidentified meat and meat products.			
	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	120,807,680	284,368	35,392	30,800	218,176	4,124,400	.....	.....	4,124,400
1896	119,312,704	700,448	29,680	10,864	659,904	5,006,848	.....	.....	5,006,848
1897	144,557,184	502,880	18,032	22,512	462,336	5,046,216	.....	.....	5,046,216
1898	149,875,600	285,712	6,944	13,104	265,664	6,253,964	.....	.....	6,253,964
1899	174,433,168	518,224	7,280	20,832	490,112	5,385,890	.....	.....	5,385,890
1900	151,729,760	843,920	219,520	26,992	597,408	4,977,754	.....	.....	4,977,754
1901	167,902,784	1,166,480	477,680	72,800	616,000	3,952,511	.....	.....	3,952,511
1902	191,378,656	1,241,968	469,616	110,432	661,920	6,188,508	.....	.....	6,188,508
1903	226,424,000	805,728	370,384	12,992	422,352	4,452,235	.....	.....	4,452,235
1904	209,261,472	591,808	379,568	7,616	204,624	5,149,377	1,076,768	44,800	4,027,809
1905	162,841,392	430,976	286,496	.....	144,480	6,050,696	978,432	553,280	4,518,984
1906	187,600,448	725,536	580,160	336	145,040	11,438,809	1,997,856	3,411,520	6,029,433
1907	208,862,192	978,880	792,176	1,344	185,360	15,062,387	2,995,216	4,930,240	7,136,931
1908	186,991,840	490,784	171,136	96,096	223,552	10,961,656	2,161,264	3,528,000	5,272,392
1909	222,726,000	466,256	136,976	175,952	153,328	15,592,642	1,148,336	6,018,880	8,425,426
1910	227,865,344	1,956,752	1,229,312	421,680	305,760	18,311,255	1,422,400	7,318,080	9,570,775
1911	211,595,216	1,783,824	1,222,032	332,528	229,264	15,681,193	1,136,240	5,671,680	8,873,273

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TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years*—Continued.

RUSSIA.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895....	8,163	104,560	82,820	15,088,750	1,629,265	918,581	.....	918,581	.....
1896....	11,522	75,428	78,531	13,337,606	853,688	548,975	.....	548,975	.....
1897....	8,165	65,458	72,786	15,128,363	586,603	266,073	.....	266,073	.....
1898....	11,259	106,277	65,393	13,600,826	709,962	53,554	.....	53,554	.....
1899....	9,543	109,196	64,547	9,675,128	468,192	65,399	.....	65,399	.....
1900....	9,582	54,067	66,535	17,922,026	563,239	80,241	.....	80,241	.....
1901....	8,222	84,144	69,789	27,190,204	1,182,920	20,764	.....	20,764	.....
1902....	6,106	18,243	72,051	31,663,433	3,187,678	36,581	.....	36,581	.....
1903....	5,836	51,530	72,291	32,391,380	1,626,810	94,794	.....	94,794	.....
1904....	4,461	35,504	68,988	28,103,920	1,312,701	116,428	.....	116,428	.....
1905....	5,784	26,044	64,258	27,616,903	1,773,319	269,654	.....	269,654	.....
1906....	11,240	42,226	106,684	30,326,266	933,769	70,312	.....	70,312	.....
1907....	5,155	41,695	73,731	25,222,876	885,125	608,645	.....	608,645	.....
1908....	3,816	12,564	81,335	20,970,487	295,800	96,674	.....	96,674	.....
1909....	2,208	19,301	90,725	29,445,402	706,981	94,038	.....	94,038	.....
1910....	2,331	15,467	79,586	40,009,009	1,166,876	177,783	.....	177,783	.....
1911....	4,870	13,431	79,889	43,803,924	903,398	19,862	.....	19,862	.....
1912....	3,858	26,285	108,211	55,468,251	394,497	51,750	.....	51,750	.....

Year.	Meat and meat products—Continued.								
		Pork and pork products.				Unidentified meat and meat products.			
	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895....	3,209,454	6,226,575	4,198,742	710,684	1,317,149	4,734,140	3,851,273	.....	882,867
1896....	2,867,618	4,690,079	2,150,145	304,713	2,225,221	5,240,934	4,475,288	.....	765,646
1897....	3,501,997	7,098,175	3,601,378	320,530	3,176,267	4,262,118	3,148,966	.....	1,113,152
1898....	3,507,342	8,113,933	6,160,599	656,408	1,296,926	1,925,997	1,210,944	.....	715,053
1899....	2,808,900	5,355,049	4,283,642	402,793	668,614	1,445,780	676,269	.....	769,511
1900....	2,004,758	7,244,537	5,091,684	482,998	1,669,855	8,592,490	606,790	.....	7,985,700
1901....	2,319,329	14,017,125	7,282,707	1,162,156	5,572,262	10,832,986	1,833,731	.....	8,999,255
1902....	1,934,267	18,017,576	10,272,058	3,151,097	4,594,421	11,675,009	2,355,116	.....	9,319,893
1903....	1,018,756	15,325,319	6,801,695	1,532,016	6,991,608	15,952,511	5,312,689	.....	10,639,822
1904....	956,086	12,874,033	6,159,977	1,196,273	5,517,783	14,157,373	3,074,716	.....	11,082,657
1905....	874,580	11,478,056	5,171,678	1,503,665	4,802,713	14,994,613	4,282,906	.....	10,711,707
1906....	832,400	15,469,929	6,583,544	863,457	8,022,928	13,953,625	2,631,901	.....	11,321,724
1907....	614,784	12,178,139	6,029,971	276,480	5,871,688	11,821,308	1,852,442	.....	9,968,866
1908....	351,739	9,482,391	5,825,609	199,126	3,457,656	11,039,683	1,409,663	.....	9,630,020
1909....	404,608	13,913,287	6,557,398	612,943	6,742,946	15,033,469	2,367,302	.....	12,666,167
1910....	617,818	23,471,188	7,067,419	989,093	15,414,676	15,742,220	1,672,348	.....	14,069,872
1911....	361,453	25,635,213	5,988,152	883,536	18,763,525	17,787,396	2,428,261	.....	15,359,135
1912....	309,956	29,096,734	9,091,181	342,747	19,662,806	26,009,811	11,319,449	.....	14,690,362

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TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years*—Continued.

UNITED STATES.

Year ending June 30—	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	Number.	Number.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
1895	331,722	405,748	7,130	1,529,603,206	593,146,436	432,836,252	191,338,487	114,100,504	127,397,261
1896	372,461	491,565	21,049	1,663,316,454	678,557,020	522,473,169	224,783,225	162,768,252	134,921,692
1897	392,190	244,120	28,751	1,917,546,223	770,394,084	607,935,982	290,395,930	194,867,892	122,672,160
1898	439,255	199,690	14,411	2,246,559,691	937,797,190	580,421,055	274,768,074	222,639,880	83,013,101
1899	389,490	143,286	33,031	2,310,666,932	974,612,393	625,144,625	282,139,974	256,474,990	86,529,661
1900	397,286	125,772	51,180	2,218,623,379	907,380,784	674,284,723	329,078,609	240,026,691	105,179,423
1901	459,218	297,925	22,318	2,183,715,720	860,917,387	705,104,772	351,748,333	243,809,001	109,547,438
1902	392,884	358,720	8,368	1,944,588,339	738,623,584	596,254,520	301,824,473	178,333,100	116,096,947
1903	402,178	176,961	4,031	1,602,258,417	654,455,671	546,055,244	254,795,963	161,024,915	130,234,366
1904	593,409	301,313	6,345	1,818,256,335	812,374,102	663,147,095	299,579,671	248,245,264	115,322,160
1905	567,806	268,365	44,496	1,804,565,011	828,823,278	675,874,718	236,486,568	216,628,401	122,759,749
1906	584,239	142,660	59,170	2,208,523,831	1,062,772,063	732,884,572	268,054,227	319,019,405	145,810,940
1907	423,051	135,344	24,262	1,968,402,278	957,912,659	689,752,420	281,651,502	328,592,524	79,508,394
1908	349,210	101,000	30,818	1,828,009,738	912,233,574	579,303,478	201,154,105	306,876,839	71,272,534
1909	207,542	67,656	18,655	1,483,782,815	766,689,699	418,844,332	122,952,671	236,207,071	59,684,590
1910	139,430	44,517	4,410	1,037,020,185	522,951,535	286,295,874	75,729,666	158,890,299	51,675,909
1911	150,100	121,491	8,551	1,193,170,323	687,180,373	265,923,983	42,510,731	172,304,999	51,108,253
1912	105,506	157,263	19,038	1,355,559,838	765,674,770	233,924,626	15,264,320	169,545,968	49,114,338
1913	24,714	187,132	15,332	1,195,548,040	695,114,023	170,208,230	7,362,388	130,148,575	32,697,267
1914	18,376	152,598	10,122	1,114,746,297	629,702,468	151,212,009	6,394,404	118,086,898	26,730,707
1915	5,484	47,213	7,799	1,544,253,039	620,365,128	394,990,962	170,440,934	117,432,024	107,118,004

Meat and meat products—Continued.

Year ending June 30—	Pork and pork products.				Unidentified meat and meat products.			
	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
1895	591,449	1,006,175,505	818,581	479,045,932	616,310,992	.....	.....	.....	.....
1896	422,950	1,140,420,335	744,656	515,788,768	623,886,911	.....	.....	.....	.....
1897	361,955	1,309,248,286	1,306,424	575,526,192	732,415,670	.....	.....	.....	.....
1898	329,169	1,665,809,467	12,224,285	715,157,310	938,427,872	.....	.....	.....	.....
1899	379,110	1,685,143,197	41,310,364	718,137,403	925,695,430	.....	.....	.....	.....
1900	773,760	1,543,564,896	25,946,905	667,354,093	850,263,898	.....	.....	.....	.....
1901	691,121	1,468,120,721	30,728,586	617,108,386	820,283,749	9,799,106	.....	.....	9,799,106
1902	430,351	1,340,766,171	44,171,674	560,290,484	736,304,013	7,137,297	.....	.....	7,137,297
1903	6,144,020	1,044,794,505	20,966,113	493,430,756	530,397,636	5,264,648	.....	.....	5,264,648
1904	465,255	1,149,081,636	18,633,820	564,128,838	566,318,978	5,562,349	.....	.....	5,562,349
1905	640,837	1,221,987,948	14,946,284	612,194,877	594,846,787	6,061,508	.....	.....	6,061,508
1906	516,345	1,467,196,128	13,444,438	743,752,658	709,999,032	7,926,786	.....	.....	7,926,786
1907	822,998	1,269,825,887	11,467,779	629,320,135	629,037,973	8,000,973	.....	.....	8,000,973
1908	1,185,040	1,239,153,725	16,374,468	605,356,735	617,422,522	8,367,495	.....	.....	8,367,495
1909	1,498,674	1,054,901,751	9,555,315	530,482,628	514,863,808	8,538,058	.....	.....	8,538,058
1910	1,989,472	708,243,627	1,040,278	364,061,236	343,142,113	40,491,212	.....	.....	40,491,212
1911	2,160,259	880,355,711	1,355,378	514,875,374	364,124,959	44,730,370	.....	.....	44,730,370
1912	3,595,543	1,073,506,752	2,597,880	596,128,802	474,780,070	44,532,917	.....	.....	44,532,917
1913	5,266,019	985,859,082	2,457,997	564,965,448	418,435,637	34,214,709	.....	.....	34,214,709
1914	4,685,496	922,747,021	2,668,020	511,615,570	408,463,431	36,101,771	.....	.....	36,101,771
1915	3,877,413	1,107,560,630	3,908,193	502,933,104	600,719,333	37,824,034	.....	.....	37,824,034

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TABLE 5.—*Domestic exports of live meat animals, meat, and meat products from nine principal countries, by years*—Continued.

URUGUAY.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	95,387	235,181	4,025	168,105,441	45,518,173	166,827,219	.....	45,518,173	121,309,046
1896	154,017	404,679	6,403	170,109,787	46,662,269	168,563,582	.....	46,662,269	121,901,313
1897	88,713	215,132	3,652	138,096,465	36,357,488	137,227,249	.....	36,357,488	100,869,761
1898	30,843	114,953	1,113	146,603,536	32,960,649	145,540,037	.....	32,960,649	112,579,388
1899	24,672	71,850	197	165,317,670	34,112,010	164,073,218	.....	34,112,010	129,961,208
1900	60,572	60,088	343	164,287,516	36,142,262	163,010,123	.....	36,142,262	126,867,861
1901	42,684	97,040	58	136,118,080	31,888,958	134,622,628	.....	31,888,958	102,733,670
1902	55,505	163,333	428	129,428,508	33,733,228	127,686,607	.....	33,733,228	93,953,379
1903	86,809	208,868	237	171,975,561	39,721,149	165,341,746	.....	39,721,149	125,620,597
1904	96,830	160,391	1,091	189,818,986	46,407,452	177,326,459	.....	46,407,452	130,919,007
1905	46,130	120,747	2,250	150,136,130	34,024,392	130,466,222	6,669	34,024,392	96,435,161
1906	87,528	180,221	1,045	154,045,960	33,188,516	140,268,266	.....	33,188,516	107,079,750
1907	88,039	210,250	1,011	162,795,834	35,167,473	136,076,226	.....	35,167,473	100,908,753
1908	171,390	223,673	584	163,535,098	35,975,203	135,067,592	.....	35,975,203	99,092,389
1909	202,858	267,306	1,347	176,484,056	36,690,164	143,525,880	.....	36,690,164	106,835,716
1910	143,934	203,888	576	203,963,473	41,679,788	156,886,714	.....	41,679,788	115,206,926
1911	.....	.....	.....	.....	.....	.....	.....	.....	.....
1912	77,444	320,389	38	184,097,510	39,772,408	124,097,910	.....	39,772,408	84,325,502

Year.	Meat and meat products.—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	.....	.....	.....	.....	1,278,222	.....	.....	1,278,222
1896	.....	.....	.....	.....	.....	1,546,205	.....	.....	1,546,205
1897	.....	.....	.....	.....	.....	869,216	.....	.....	869,216
1898	.....	.....	.....	.....	.....	1,063,499	.....	.....	1,063,499
1899	.....	.....	.....	.....	.....	1,244,452	.....	.....	1,244,452
1900	.....	.....	.....	.....	.....	1,277,393	.....	.....	1,277,393
1901	.....	.....	.....	.....	.....	1,495,452	.....	.....	1,495,452
1902	.....	.....	.....	.....	.....	1,741,901	.....	.....	1,741,901
1903	.....	2,914	.....	.....	2,914	6,630,901	11,464	.....	6,619,437
1904	.....	2,844	.....	.....	2,844	12,489,683	42,789	.....	12,446,894
1905	641,631	1,358	.....	.....	1,358	19,026,919	5,330,568	.....	13,696,351
1906	2,291,179	4,687	.....	.....	4,687	11,481,828	3,914,309	.....	7,567,519
1907	7,736,193	220	.....	.....	220	18,983,195	12,263,936	.....	6,719,259
1908	5,114,037	3,373	.....	.....	3,373	23,350,096	15,341,227	.....	8,008,869
1909	9,610,466	3,968	.....	.....	3,968	23,343,742	12,610,700	.....	10,733,042
1910	8,092,050	7,738	.....	.....	7,738	38,976,971	20,780,851	.....	18,196,120
1911	.....	.....	.....	.....	.....	.....	.....	.....	.....
1912	3,309,030	.....	.....	.....	.....	56,690,570	45,019,786	.....	11,670,784

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TABLE 6.—*Percentage of domestic exports from the United States of live meat animals, meat, and meat products consigned to principal countries, by fiscal years.*

Exporting country, importing country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
United States exporting to—																		
Austria-Hungary:	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*
1895–1904	....	....	....	0.3	0.7	0.3	....	0.8	....	....	0.4	....	....	....	....	....	....	....
1905–1909	....	....	....	.7	1.3	.9	....	1.1	....	....	.6	....	....	....	....	....	....	....
1910	....	....	....	.1	.1	(1)	....	(1)	....	....	.1	....	....	....	....	....	....	....
1911	....	....	....	1.2	1.4	.2	....	.3	....	....	1.5	....	....	....	....	....	....	....
1912	....	....	....	1.0	1.2	1.3	....	1.8	....	....	1.0	....	....	....	....	....	....	....
1913	....	....	....	.3	.3	.5	....	.6	....	....	.2	....	....	....	....	....	....	....
Belgium:																		
1895–1904	0.7	....	....	4.0	4.5	1.3	....	2.4	2.5	....	5.2	....	5.3	5.3	[2]9.8	....	....	[2]9.8
1905–1909	1.6	....	....	3.7	4.4	2.4	....	3.8	3.7	....	4.3	....	4.7	4.1	12.7	....	....	12.7
1910	.2	....	....	2.3	2.3	1.8	....	1.7	4.9	....	2.4	....	2.5	2.3	3.2	....	....	3.2
1911	1.6	....	....	3.4	3.5	2.3	....	2.3	4.2	....	3.8	....	3.9	3.5	2.0	....	....	2.0
1912	9.0	....	....	3.8	3.7	3.7	....	3.9	4.3	....	3.9	....	3.7	4.2	3.2	....	....	3.2
1913	....	....	....	3.6	3.6	3.6	....	4.1	2.2	....	3.6	....	3.5	3.7	3.7	....	....	3.7
British South Africa:																		
1895–1904	....	....	....	.6	.4	1.2	....	....	5.9	....	.3	2.8	....	....	....	....	....	....
1905–1909	....	....	....	.3	.2	.4	....	....	2.4	....	.2	2.4	....	....	....	....	....	....
1910	....	....	....	.2	.1	.3	....	....	1.6	....	.1	....	....	....	....	....	....	....
1911	....	....	....	.2	.2	.4	....	....	1.9	....	.1	....	....	....	....	....	....	....
1912	....	....	....	.2	.1	.4	....	....	1.6	....	.1	....	....	....	....	....	....	....
1913	....	....	....	.2	.3	.3	....	....	1.6	....	.2	....	....	....	....	....	....	....
British West Indies:																		
1895–1904	....	....	....	.9	.5	1.0	....	.8	3.7	....	.9	....	....	1.2	....	....	....	....
1905–1909	....	....	....	.8	.3	1.1	....	.4	5.4	....	.7	....	....	1.1	....	....	....	....
1910	....	....	....	.9	.4	1.6	....	.8	5.8	....	.7	....	....	1.2	....	....	....	....
1911	....	....	....	.9	.3	2.1	....	.8	7.8	....	.6	....	....	1.2	....	....	....	....
1912	....	....	....	.8	.2	2.2	....	.8	7.2	....	.5	....	....	1.0	....	....	....	....
1913	....	....	....	.7	.2	2.2	....	.8	7.9	....	.5	....	....	1.0	....	....	....	....
Canada:																		
1895–1904	3.4	22.6	10.1	1.4	.5	.7	.1	.3	3.1	....	1.8	.3	.6	2.7	[2]1.4	....	....	[2]1.4
1905–1909	3.1	41.7	41.3	1.5	.9	.5	.1	.1	2.8	[3]15.5	1.9	1.0	1.3	2.6	3.6	....	....	3.6
1910	7.4	82.1	2.8	2.4	1.8	.7	.2	.1	3.0	39.2	3.1	7.5	2.6	3.6	1.4	....	....	1.4
1911	5.3	64.4	1.0	2.0	1.0	.8	.6	.1	3.6	45.9	2.3	15.2	1.3	3.8	1.3	....	....	1.3
1912	6.4	77.8	.3	2.6	1.1	1.1	3.8	(1)	3.8	57.8	2.8	34.3	1.4	4.4	2.0	....	....	2.0
1913	47.3	93.6	1.5	3.6	1.8	1.6	8.7	.9	2.5	79.7	3.6	23.6	2.0	5.5	3.6	....	....	3.6
Cuba:																		
1895–1904	13.0	....	43.8	2.3	3.5	.3	.3	.3	.2	....	3.1	.1	4.6	2.1	17.3	....	....	17.3
1905–1909	14.1	....	29.6	2.7	3.3	.4	.3	.4	.6	....	3.7	1.0	4.6	2.8	28.3	....	....	28.3
1910	.1	....	71.8	5.1	6.6	.6	.1	.8	.3	....	7.0	22.6	9.1	4.6	5.4	....	....	5.4
1911	.2	....	93.8	4.8	5.3	.7	.1	.8	1.0	....	6.0	6.6	6.8	4.8	4.7	....	....	4.7
1912	.5	....	89.1	5.0	5.9	1.1	.3	1.3	.7	....	5.8	3.2	7.2	4.2	5.5	....	....	5.5
1913	.5	....	72.7	6.2	7.0	1.6	1.7	1.4	2.6	....	7.0	4.0	8.3	5.2	7.7	....	....	7.7
Denmark:																		
1895–1904	....	....	....	.9	2.0	1.3	....	3.4	.8	....	.8	....	1.5	.2	....	....	....	....
1905–1909	....	....	....	1.7	2.8	2.4	....	4.4	1.9	....	1.3	....	2.1	.6	....	....	....	....
1910	....	....	....	1.2	2.2	2.6	....	4.3	1.0	....	.7	....	1.2	(1)	....	....	....	....
1911	....	....	....	1.2	1.8	3.0	....	4.4	1.0	....	.6	....	.9	(1)	....	....	....	....
1912	....	....	....	.9	1.3	2.4	....	2.9	1.3	....	.6	....	.9	.1	....	....	....	....
1913	....	....	....	.8	1.2	3.2	....	3.8	1.5	....	.4	....	.6	(1)	....	....	....	....
France:																		
1895–1904	....	....	....	2.0	3.8	1.9	....	4.7	1.8	....	2.0	....	3.5	.8	36.9	....	....	36.9
1905–1909	....	....	....	1.4	2.3	2.2	....	4.3	.9	....	.8	....	1.4	.2	29.8	....	....	29.8
1910	....	....	....	.6	.8	1.4	....	2.3	.8	....	.1	....	.2	.1	4.0	....	....	4.0

[1] Less than 0.05 per cent. [2] 1901–1904. [3] 1907–1909.

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TABLE 6.—*Percentage of domestic exports from the United States of live meat animals, meat, and meat products consigned to principal countries, by fiscal years*—Contd.

Exporting country, importing country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
United States exporting to—																		
France—Continued.	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
1911	....	....	....	1.8	2.5	1.8	....	2.6	0.5	....	1.7	....	2.5	0.6	2.9	....	....	2.9
1912	....	....	....	3.3	4.2	3.2	....	4.3	.5	....	3.2	....	4.1	2.1	5.3	....	....	5.3
1913	....	....	....	2.6	3.7	4.7	....	6.1	.5	....	2.1	....	3.1	.7	6.8	....	....	6.8
Germany:																		
1895–1904	....	....	....	13.1	26.8	8.1	....	18.5	9.4	....	15.4	.3	29.6	4.5	2.5	....	....	2.5
1905–1909	....	....	....	14.1	26.5	9.5	....	16.1	11.9	....	16.4	.1	31.3	1.6	(1)	....	....	(1)
1910	....	....	....	14.0	24.0	12.5	....	20.0	8.0	....	13.3	....	25.8	.2	37.3	....	....	37.3
1911	....	....	....	18.0	27.8	13.3	....	17.9	9.0	....	18.4	.2	31.2	.5	38.9	....	....	38.9
1912	....	....	....	16.0	25.5	11.8	....	13.4	9.6	....	16.3	....	28.9	.5	33.8	....	....	33.8
1913	....	....	....	17.5	27.6	14.4	....	16.3	9.9	....	17.8	....	30.2	1.1	28.4	....	....	28.4
Italy:																		
1895–1904	....	....	....	.6	.7	.4	....	1.3	....	....	.6	....	.5	.7	....	....	....	....
1905–1909	....	....	....	.9	.8	.8	....	1.5	....	....	.9	....	.5	1.3	....	....	....	....
1910	....	....	....	.6	.7	.5	....	.8	....	....	.6	....	.6	.6	....	....	....	....
1911	....	....	....	1.3	1.2	1.0	....	1.5	....	....	1.4	....	1.1	1.8	....	....	....	....
1912	....	....	....	1.1	.8	1.1	....	1.5	....	....	1.1	....	.5	1.8	....	....	....	....
1913	....	....	....	1.6	1.0	.5	....	.6	....	....	1.8	....	1.1	2.8	....	....	....	....
Netherlands:																		
1895–1904	....	....	....	8.0	17.3	14.1	....	40.1	2.4	....	5.3	.4	9.4	2.1	4.6	....	....	4.6
1905–1909	....	....	....	9.1	17.4	16.1	....	33.7	1.5	....	5.8	(1)	10.0	1.7	2.3	....	....	2.3
1910	....	....	....	8.2	14.2	18.0	....	31.8	1.8	....	3.5	....	6.5	.4	21.4	....	....	21.4
1911	....	....	....	11.8	18.0	26.9	....	41.0	2.0	....	6.6	....	10.3	1.3	24.9	....	....	24.9
1912	....	....	....	12.4	19.4	32.0	....	41.1	2.0	....	8.1	....	13.2	1.6	25.3	....	....	25.3
1913	....	....	....	11.4	17.4	30.0	....	38.7	2.2	....	8.0	....	12.5	1.9	20.9	....	....	20.9
Norway and Sweden:																		
1895–1904	....	....	....	1.8	2.6	2.4	....	6.1	2.0	....	1.6	....	1.4	1.7	....	....	....	....
1905–1909	....	....	....	1.0	1.3	1.4	....	2.5	1.3	....	.8	....	.7	.9	....	....	....	....
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1913	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Norway:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	.8	1.0	1.5	....	2.7	1.2	....	.4	....	.3	.6	....	....	....	....
1910	....	....	....	1.3	2.2	3.9	....	6.2	2.5	....	.4	....	.4	.3	....	....	....	....
1911	....	....	....	1.8	2.0	4.6	....	6.1	3.6	....	1.0	....	.7	1.4	....	....	....	....
1912	....	....	....	1.6	1.8	4.8	....	5.3	4.4	....	.9	....	.7	1.1	....	....	....	....
1913	....	....	....	1.3	1.5	4.7	....	5.1	4.1	....	.8	....	.6	1.1	....	....	....	....
Sweden:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	.4	.4	.5	....	.9	....	....	.4	....	.2	.5	....	....	....	....
1910	....	....	....	.4	.5	.8	....	1.4	....	....	.1	....	.2	(1)	....	....	....	....
1911	....	....	....	.6	.5	.9	....	1.2	....	....	.4	....	.3	.7	....	....	....	....
1912	....	....	....	.6	.6	1.4	....	1.8	....	....	.4	....	.3	.6	....	....	....	....
1913	....	....	....	.5	.5	1.4	....	1.6	....	....	.3	....	.2	.5	....	....	....	....
Russia:																		
1895–1904	....	....	....	.1	.1	.1	....	.3	....	....	.2	....	....	.2	....	....	....	....
1905–1909	....	....	....	.4	.2	.3	....	.5	....	....	.4	....	....	.7	.1	....	....	.1
1910	....	....	....	.2	.2	.2	....	.3	....	....	.2	....	....	.2	1.6	....	....	1.6
1911	....	....	....	.2	.2	.3	....	.4	....	....	.1	....	....	.1	2.8	....	....	2.8
1912	....	....	....	.1	(1)	.1	....	.2	....	....	(1)	....	....	....	2.2	....	....	2.2
1913	....	....	....	.1	.1	.2	....	.3	....	....	(1)	....	....	.1	2.1	....	....	2.1

[1] Less than 0.05 per cent.

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TABLE 6.—*Percentage of domestic exports from the United States of live meat animals, meat, and meat products consigned to principal countries, by fiscal years*—Contd.

Exporting country, importing country, period, and year.	Live animals.			Meat and meat products.														
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
United States exporting to—																		
Spain:	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
1895–1904	....	....	....	(1)	(1)	....	....	....	....	....	....	....	....	....	.4	....	....	.4
1905–1909	....	....	....	(1)	(1)	....	....	....	....	....	....	....	....	....	(1)	....	....	(1)
1910	....	....	....	.3	.1	....	....	....	....	....	....	....	....	....	4.3	....	....	4.3
1911	....	....	....	.2	(1)	....	....	....	....	....	....	....	....	....	5.1	....	....	5.1
1912	....	....	....	.2	(1)	....	....	....	....	....	....	....	....	....	5.1	....	....	5.1
1913	....	....	....	.2	(1)	....	....	....	....	....	....	....	....	....	5.5	....	....	5.5
Switzerland:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1913	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
United Kingdom:																		
1895–1904	80.6	72.3	.9	58.1	30.3	62.7	99.3	16.6	54.1	....	56.9	95.5	35.0	73.4	12.2	....	....	12.2
1905–1909	76.0	50.7	1.0	55.3	31.1	53.1	98.0	21.6	41.4	43.1	56.7	94.1	35.4	77.5	6.2	....	....	6.2
1910	87.6	1.9	....	54.6	37.2	43.1	93.5	20.7	38.2	36.4	61.8	38.0	44.4	80.5	10.0	....	....	10.0
1911	87.5	30.5	....	42.6	27.3	27.8	87.6	11.7	32.4	32.6	48.9	5.6	32.5	72.4	5.8	....	....	5.8
1912	72.9	12.0	....	42.2	27.3	18.9	58.1	12.3	29.5	30.2	48.9	37.3	31.5	70.7	6.4	....	....	6.4
1913	7.2	1.1	....	40.8	26.6	13.6	1.7	10.8	27.7	10.1	46.8	30.8	30.2	69.3	7.5	....	....	7.5

[1] Less than 0.05 per cent.

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TABLE 7.—*Percentage of the total domestic exports from nine principal countries of live meat animals, meat, and meat products contributed by each country, by years.*

Exporting country, period, and year.	Live animals.			Meat and meat products.														
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct.	P.ct
Argentina:																		
1895–1904	21.7	24.9	1.0	11.2	7.3	17.9	17.1	17.2	20.2	37.5	....	....	....	....	19.0	55.9	.....	15.3
1905–1909	12.9	14.2	(1)	19.1	8.2	34.1	54.5	17.8	11.5	34.7	(1)	(1)	(1)	(1)	29.4	53.3	.....	21.0
1910	12.3	15.5	....	28.5	15.5	47.2	69.8	26.3	10.9	27.9	(1)	(1)	(1)	(1)	29.7	47.3	.....	25.6
1911	23.4	20.7	(1)	31.9	16.0	54.2	79.4	30.5	13.7	35.0	(1)	....	(1)	....	33.4	52.8	.....	28.0
1912	32.3	15.1	(1)	31.2	15.7	58.0	80.4	32.7	12.5	31.6	(1)	....	(1)	....	32.3	35.6	.....	31.5
Australia:																		
1895–1904	.3	1.0	.2	7.6	8.2	13.1	15.7	19.1	....	16.4	0.1	0.8	(1)	(1)	41.7	....	.....	45.8
1905–1909	.1	1.6	.2	6.9	7.1	9.1	7.4	15.3	....	21.6	.2	8.4	0.1	(1)	12.7	3.4	.....	17.1
1910	.5	2.6	.3	14.5	15.9	16.5	13.7	26.6	....	32.0	.5	7.4	.8	0.3	16.2	5.1	.....	20.2
1911	1.3	4.5	.4	12.1	14.0	15.9	12.5	26.1	....	23.9	.6	16.1	.6	.3	18.4	6.6	.....	22.9
1912	2.0	4.9	.5	11.0	10.6	15.9	15.1	21.8	....	23.6	.4	6.5	.3	.3	13.9	5.0	.....	19.1
Canada:																		
1895–1904	15.2	29.8	3.7	3.5	.1	.3	....	.1	1.1	(1)	6.2	....	.1	10.1	12.5	....	.....	13.8
1905–1909	17.6	30.6	.9	3.2	.1	.2	....	.1	.8	(1)	6.1	....	.1	10.3	13.4	....	.....	19.4
1910	21.6	22.3	.4	1.9	.2	.1	....	.1	.7	(1)	5.1	....	.4	8.0	4.3	....	.....	5.7
1911	15.8	8.7	3.4	1.8	(1)	.1	....	(1)	.5	(1)	5.0	....	(1)	8.7	1.2	....	.....	1.6
1912	7.6	3.1	1.0	2.0	.2	.2	....	.3	.6	(1)	4.4	....	(1)	7.6	4.0	....	.....	6.2
Denmark:																		
1895–1904	....	....	....	4.8	....	....	....	....	....	....	9.5	....	....	15.4	....	....	.....	....
1905–1909	....	....	....	5.9	....	....	....	....	....	....	13.5	....	....	22.9	....	....	.....	....
1910	....	....	....	6.2	....	....	....	....	....	....	20.9	....	....	33.7	....	....	.....	....
1911	....	....	....	6.7	....	....	....	....	....	....	20.1	....	....	35.6	....	....	.....	....
1912	....	....	....	6.8	....	....	....	....	....	....	18.3	....	....	32.0	....	....	.....	....
Mexico:																		
1895–1904	17.7	1.9	4.6	(1)	(1)	....	....	....	....	....	(1)	....	(1)	....	.1	(1)	.....	.1
1905–1909	10.3	2.1	2.5	(1)	(1)	(1)	....	(1)	....	....	(1)	....	(1)	....	(1)	.1	.....	(1)
1910	26.5	5.2	5.1	(1)	(1)	(1)	....	(1)	....	....	(1)	....	(1)	....	.7	1.5	.....	.5
1911	21.6	1.3	4.7	(1)	(1)	(1)	....	(1)	....	....	(1)	....	(1)	....	.1	.5	.....	(1)
1912	34.9	3.3	2.1	(1)	(1)	(1)	....	(1)	....	....	(1)	....	(1)	....	(1)	(1)	.....	(1)
New Zealand:																		
1895–1904	.1	.9	.2	7.1	3.6	4.7	3.9	8.5	.3	45.4	.1	.8	(1)	.1	7.2	1.7	100.0	7.8
1905–1909	(1)	1.4	.3	7.9	3.8	5.4	5.3	7.6	.5	42.3	(1)	1.8	(1)	(1)	10.1	5.6	100.0	7.8
1910	(1)	1.3	.8	10.7	6.4	7.2	7.1	9.5	.7	38.3	.2	12.2	.1	(1)	7.9	2.8	100.0	5.6
1911	(1)	1.5	.7	8.1	4.2	4.2	3.2	6.9	.6	39.1	.1	12.0	.1	(1)	6.3	1.9	100.0	4.8
1912	(1)	1.1	.5	7.7	4.0	4.2	2.9	7.3	.8	43.3	.1	8.9	.1	(1)	5.5	1.2	100.0	4.8
Russia:																		
1895–1904	.7	5.6	69.5	.6	.1	(1)	....	.1	....	.7	.6	21.8	.2	.3	11.3	42.3	.....	8.2
1905–1909	.6	3.8	66.7	.7	.1	(1)	....	(1)	....	.1	.8	28.2	.1	.6	11.4	7.6	.....	13.5
1910	.3	3.1	87.8	1.2	.1	(1)	....	(1)	....	.1	2.4	70.1	.3	2.5	6.8	3.2	.....	8.2
1911	.6	2.5	81.5	1.2	.1	(1)	....	(1)	....	.1	2.1	58.6	.2	2.7	7.1	4.0	.....	8.4
1912	.5	3.8	81.5	1.4	(1)	(1)	....	(1)	....	.1	2.0	65.8	.1	2.4	9.1	11.7	.....	8.0
United States:																		
1895–1904	37.7	22.0	19.1	60.3	76.9	50.7	63.3	46.2	38.4	....	83.5	76.6	99.7	74.1	4.0	....	.....	4.4
1905–1909	45.7	19.3	28.4	51.8	77.7	41.7	32.8	52.7	42.2	.2	79.4	61.6	99.7	66.2	6.6	....	.....	9.6
1910	19.1	9.0	4.9	30.9	57.3	18.7	9.4	29.7	27.2	.3	70.9	10.3	98.4	55.5	17.5	....	.....	23.6
1911	19.0	22.7	8.7	32.6	61.9	16.1	4.9	29.4	26.2	.4	72.1	13.3	99.1	52.7	17.9	....	.....	24.4
1912	13.1	22.6	14.4	35.1	66.1	14.2	1.6	30.7	31.7	.7	74.8	18.8	99.5	57.7	15.5	....	.....	24.1
Uruguay:																		
1895–1904	6.6	13.9	1.7	4.9	3.8	13.3	....	8.8	40.0	....	(1)	....	....	(1)	4.2	.1	.....	4.6
1905–1909	12.8	27.0	1.0	4.5	3.0	9.5	(1)	6.5	45.0	1.1	(1)	....	....	(1)	16.4	30.0	.....	11.6
1910	19.7	41.0	.7	6.1	4.6	10.3	....	7.8	60.5	1.4	(1)	....	....	(1)	16.9	40.1	.....	10.6
1911	18.3	38.1	.6	5.6	3.8	9.5	....	7.1	59.0	1.5	(1)	....	....	(1)	15.6	34.2	.....	9.9
1912	9.6	46.1	(1)	4.8	3.4	7.5	....	7.2	54.4	.7	....	....	....	....	19.7	46.5	.....	6.3

[1] Less than 0.05 per cent.

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TABLE 8.—*Beef, mutton, pork, and their products, and fats and oils as percentages of total domestic exports of meat and meat products from nine principal countries, by years.*

Exporting country, period, and year.	Percentage of total domestic exports of meat and meat products from each country during the specified period or year.											
	Total beef, mutton, pork, and unidentified meat and meat products, excluding fats and oils.	Beef and beef products.		Mutton.	Pork and pork products.		Unidentified meat and meat products.		Fats and oils.			
		Total.	Excluding fats and oils.		Total.	Excluding fats and oils.	Total.	Excluding fats and oils.	Total.	Beef.	Pork.	Unidentified.
Total, all countries:	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
1895–1904	68.1	36.4	22.8	11.4	50.0	31.7	2.2	2.2	31.9	13.6	18.3	(1)
1905–1909	67.6	40.0	25.2	12.8	43.9	26.4	3.3	3.2	32.4	14.9	17.4	0.1
1910	72.8	45.6	29.6	17.7	29.8	18.8	6.9	6.7	27.2	16.0	11.0	.2
1911	69.7	45.0	29.0	14.8	33.4	19.2	6.8	6.7	30.3	16.0	14.2	.1
1912	70.0	42.7	28.4	12.7	37.2	21.6	7.4	7.3	30.0	14.3	15.6	.1
Argentina:												
1895–1904	79.1	58.2	37.3	38.1	.....	.....	3.7	3.7	20.9	20.9	.....	.....
1905–1909	86.1	71.6	57.7	23.3	(1)	(1)	5.1	5.1	13.9	13.9	(1)	.....
1910	85.2	75.5	60.7	17.3	(1)	(1)	7.2	7.2	14.8	14.8	(1)	.....
1911	84.7	76.6	61.4	16.2	(1)	.....	7.2	7.1	15.3	15.3	(1)	.....
1912	85.0	79.4	64.4	12.9	(1)	.....	7.7	7.7	15.0	15.0	(1)	.....
1913	86.6	84.4	71.0	8.8	(1)	.....	6.8	6.8	13.4	13.4	(1)	.....
Australia:												
1895–1904	65.5	63.0	28.6	24.6	.3	.2	12.1	12.1	34.5	34.4	.1	.....
1905–1909	66.8	52.9	20.0	39.9	1.2	.9	6.0	6.0	33.2	32.9	.3	.....
1910	70.0	52.0	22.6	39.2	1.1	.5	7.7	7.7	30.0	29.4	.6	.....
1911	64.9	58.8	24.5	29.2	1.7	.9	10.3	10.3	35.1	34.3	.8	.....
1912	71.0	62.1	33.6	27.2	1.2	.7	9.5	9.5	29.0	28.5	.5	.....
Canada:												
1895–1904	98.8	3.3	2.8	.1	88.9	88.2	7.7	7.7	1.2	.5	.7	.....
1905–1909	99.0	2.1	1.7	.1	84.0	83.4	13.8	13.8	1.0	.4	.6	.....
1910	97.1	2.6	2.1	.1	81.5	79.1	15.8	15.8	2.9	.5	2.4	.....
1911	99.7	1.5	1.5	(1)	93.9	93.6	4.6	4.6	.3	(1)	.3	.....
1912	97.6	3.3	1.2	.1	81.6	81.3	15.0	15.0	2.4	2.1	.3	.....
1913	95.6	7.7	3.4	.1	84.9	84.8	7.3	7.3	4.4	4.3	.1	.....
Denmark:[2]												
1895–1904	100.0	.....	.....	.....	100.0	100.0	.....	.....	.....	.....	.....	.....
1905–1909	100.0	.....	.....	.....	100.0	100.0	.....	.....	.....	.....	.....	.....
1910	100.0	.....	.....	.....	100.0	100.0	.....	.....	.....	.....	.....	.....
1911	100.0	.....	.....	.....	100.0	100.0	.....	.....	.....	.....	.....	.....
1912	100.0	.....	.....	.....	100.0	100.0	.....	.....	.....	.....	.....	.....
Mexico:												
1895–1904	35.2	.....	.....	.....	64.8	.....	35.2	35.2	64.8	.....	64.8	.....
1905–1909	35.3	7.5	.....	.....	57.2	.....	35.3	35.3	64.7	7.5	57.2	.....
1910	99.9	(1)	.....	.....	.1	.....	99.9	99.9	.1	(1)	.1	.....
1911	98.7	1.1	.....	.....	.2	.....	98.7	98.7	1.3	1.1	.2	.....
1912	90.1	.6	.....	.....	9.3	.....	90.1	90.1	9.9	.6	9.3	.....
New Zealand:												
1895–1904	83.6	24.4	8.0	73.0	.3	.3	2.3	2.3	16.4	16.4	(1)	(1)
1905–1909	84.4	27.3	13.0	68.3	.2	.2	4.2	2.9	15.6	14.3	(1)	1.3
1910	83.6	30.6	16.4	63.7	.6	.4	5.1	3.1	16.4	14.3	.1	2.0
1911	84.4	23.2	9.5	71.0	.6	.5	5.2	3.4	15.6	13.6	.1	1.9
Russia:												
1895–1904	94.1	1.1	.....	11.8	48.5	43.7	38.6	38.6	5.9	1.1	4.8	.....
1905–1909	96.5	.9	.....	2.3	46.8	44.2	50.0	50.0	3.5	.9	2.6	.....
1910	97.1	.4	.....	1.5	58.7	56.2	39.4	39.4	2.9	.4	2.5	.....
1911	98.0	(1)	.....	.9	58.5	56.5	40.6	40.6	2.0	(1)	2.0	.....
1912	99.3	.1	.....	.6	52.4	51.8	46.9	46.9	.7	.1	.6	.....
United States:												
1895–1904	59.3	30.7	20.3	.....	69.2	38.9	.1	.1	40.7	10.4	30.3	.....
1905–1909	51.3	32.3	17.1	(1)	67.3	33.8	.4	.4	48.7	15.1	33.6	.....
1910	49.6	27.6	12.3	.2	68.3	33.2	3.9	3.9	50.4	15.3	35.1	.....
1911	42.4	22.3	7.9	.2	73.8	30.6	3.7	3.7	57.6	14.4	43.2	.....
1912	43.5	17.2	4.7	.3	79.2	35.2	3.3	3.3	56.5	12.5	44.0	.....
1913	41.9	14.2	3.4	.4	82.5	35.2	2.9	2.9	58.1	10.9	47.2	.....
1914	43.2	13.5	3.0	.4	82.9	36.6	3.2	3.2	56.8	10.5	46.3	.....
Uruguay:												
1895–1904	75.7	98.1	73.8	.....	(1)	(1)	1.9	1.9	24.3	24.3	.....	.....
1905–1909	78.3	84.9	63.2	3.2	(1)	(1)	11.9	11.9	21.7	21.7	.....	.....
1910	79.6	76.9	56.5	4.0	(1)	(1)	19.1	19.1	20.4	20.4	.....	.....
1912	78.4	67.4	45.8	1.8	.....	.....	30.8	30.8	21.6	21.6	.....	.....

[1] Less than 0.05 per cent.

[2] Bacon and hams are nearly the entire meat exports.

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TABLE 9.—*Total imports into 15 principal countries of live meat animals, meat, and meat products, by years.*

[The countries included are Austria-Hungary, Belgium, Cuba, Denmark, France, Germany, Italy, Netherlands, Norway, Russia, Spain, Sweden, Switzerland, United Kingdom, United States. Substantially the import trade of the world.]

Year.	Live animals.			Meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Beef and beef products.	
						Total.	Beef, fresh, chilled, and frozen.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	1,282,584	3,819,443	796,086	2,950,202,351	1,277,949,519	1,018,623,648	318,583,244
1896	1,448,539	3,622,734	403,675	3,212,292,815	1,377,659,644	1,078,792,746	356,740,500
1897	1,484,644	3,591,735	398,940	3,540,092,781	1,527,588,014	1,122,963,162	347,630,974
1898	1,405,212	3,583,623	372,290	3,996,084,586	1,702,282,815	1,198,473,524	379,329,281
1899	1,246,936	3,205,607	327,028	4,100,919,316	1,686,419,754	1,292,138,624	468,660,684
1900	1,586,132	3,053,149	335,198	4,070,744,411	1,659,684,785	1,425,048,170	497,352,088
1901	1,507,478	3,249,321	336,723	4,147,475,233	1,643,910,718	1,423,155,262	537,924,503
1902	1,569,932	3,220,844	362,349	3,732,818,509	1,469,038,515	1,307,332,196	446,747,051
1903	1,631,893	3,602,369	406,178	3,795,381,199	1,518,017,963	1,368,542,351	489,742,784
1904	1,625,365	3,042,527	402,831	3,883,200,901	1,618,316,323	1,410,053,672	518,157,368
1905	1,627,331	2,403,251	375,250	4,244,789,715	1,792,144,288	1,579,169,925	608,785,487
1906	1,567,046	2,471,491	566,866	4,410,244,256	1,873,714,397	1,670,101,978	666,754,113
1907	1,093,608	2,491,416	707,296	4,337,712,732	1,815,428,305	1,630,598,634	680,316,345
1908	1,204,305	2,853,179	527,884	4,310,315,987	1,759,969,992	1,524,942,450	659,451,525
1909	1,133,103	2,443,053	350,493	4,295,912,988	1,698,538,222	1,654,530,321	719,658,488
1910	1,215,203	2,442,744	329,289	4,017,307,190	1,606,317,009	1,826,745,129	825,439,161
1911	1,111,516	2,179,105	583,105	4,718,764,617	1,863,987,884	1,896,868,248	882,417,966
1912 [1]	1,022,026	2,172,094	728,142	4,830,385,899	1,896,394,134	2,032,776,851	988,146,410
1912 [2]	1,023,603	2,172,208	728,578	4,853,839,861	1,910,165,645	2,044,752,357	988,989,008

Year.	Meat and meat products—Continued.					
	Beef and beef products.		Pork and pork products.			
	Fats and oils.	Other.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	621,772,657	78,267,747	1,198,190,986	55,247,509	459,623,164	683,320,313
1896	648,759,020	73,293,226	1,350,431,194	42,422,984	534,498,606	773,509,604
1897	707,655,994	67,676,194	1,566,079,249	67,835,629	614,340,852	883,902,768
1898	757,320,690	61,823,553	1,878,782,656	102,430,285	714,175,058	1,062,177,313
1899	755,090,799	68,387,141	1,879,002,447	114,343,505	687,274,829	1,077,384,113
1900	789,368,056	138,328,026	1,725,540,419	104,993,749	638,565,310	981,981,360
1901	766,690,786	118,539,973	1,772,237,168	129,274,050	628,558,560	1,014,404,558
1902	733,097,505	127,487,640	1,509,948,427	117,437,181	527,463,462	865,047,784
1903	749,681,300	129,118,267	1,469,520,100	99,607,428	553,598,958	816,313,714
1904	756,113,573	135,782,731	1,544,237,721	79,670,632	614,186,431	850,380,658
1905	818,674,094	151,710,344	1,729,522,809	85,927,611	751,690,958	891,904,240
1906	881,195,797	122,152,068	1,758,191,626	89,324,779	754,750,900	914,115,947
1907	859,075,045	91,207,244	1,653,713,726	73,821,648	710,481,972	869,410,106
1908	772,447,763	93,043,162	1,717,783,501	85,061,518	723,964,527	908,757,156
1909	831,791,488	103,080,345	1,399,339,450	76,630,051	585,451,380	737,258,019
1910	896,433,829	104,872,139	1,068,016,973	67,233,940	412,849,848	587,933,185
1911	887,277,889	127,172,393	1,496,742,438	87,603,362	647,795,910	761,283,166
1912 [1]	924,760,916	119,869,525	1,491,384,088	105,761,960	656,536,260	729,085,868
1912 [2]	935,658,077	120,105,272	1,496,651,096	105,761,960	658,795,020	734,094,116

[1] Sweden omitted. [2] Including Sweden for 1911.

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TABLE 9.—*Total imports into 15 principal countries of live meat animals, meat, and meat products, by years*—Continued.

Year.	Meat and meat products—Continued.				
	Mutton.	Unidentified meat and meat products.			
		Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	320,113,939	413,363,778	44,387,274	196,553,698	172,422,806
1896	342,625,308	440,443,567	58,372,426	194,402,018	187,669,123
1897	372,536,206	478,514,164	59,899,325	205,591,168	213,023,671
1898	387,543,122	531,285,284	63,477,627	230,787,067	237,020,590
1899	398,363,262	531,414,983	69,908,977	244,054,126	217,451,880
1900	389,272,596	530,883,226	82,126,547	231,751,419	217,005,260
1901	413,078,918	539,003,885	94,486,067	248,661,372	195,856,446
1902	422,453,260	493,084,636	97,596,366	208,477,548	187,010,712
1903	457,534,530	499,784,218	101,307,624	214,737,705	183,738,889
1904	397,962,721	530,946,787	95,640,621	248,016,319	187,289,847
1905	434,064,057	502,032,924	93,550,367	221,779,236	181,703,321
1906	466,950,535	515,000,117	86,037,254	237,767,700	191,195,163
1907	524,481,220	528,919,152	84,758,402	245,871,288	198,289,462
1908	504,743,971	562,846,065	105,841,499	263,547,402	193,457,164
1909	553,675,454	588,367,763	118,852,852	281,295,354	188,219,557
1910	629,035,275	593,509,813	114,358,006	297,033,332	182,118,475
1911	621,673,244	703,480,687	145,841,450	328,914,085	228,725,152
1912[1]	583,441,982	722,782,978	181,904,300	315,096,958	225,781,720
1912[2]	584,772,692	725,663,716	181,976,726	315,712,548	227,974,442

[1] Sweden omitted. [2] Including Sweden for 1911.

TABLE 10.—*Quantity of imports [for consumption (†)] of live meat animals, meat, and meat products into 15 principal countries, by years.*

AUSTRIA-HUNGARY.

Year.	Live animals.			Meat and meat products.					
				Total.	Total fats and oils.	Beef and beef products.			
	Cattle.	Sheep.	Swine.			Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	73,000	52,888	205,413	19,122,229	14,871,939	6,714,617	.....	6,714,617	.....
1896	59,908	51,786	108,012	47,849,777	26,780,204	8,330,384	.....	8,330,384	.....
1897	44,085	29,702	139,641	72,366,719	56,524,525	11,344,986	.....	11,344,986	.....
1898	80,541	26,469	134,418	77,638,409	62,051,291	12,249,982	.....	12,249,982	.....
1899	78,517	29,747	97,990	49,114,791	36,156,243	12,677,018	.....	12,677,018	.....
1900	74,036	37,345	88,062	25,368,366	12,132,035	2,642,460	.....	2,642,460	.....
1901	53,860	36,563	111,606	25,158,484	10,582,626	4,091,337	.....	4,091,337	.....
1902	69,776	32,905	149,287	19,664,347	5,406,836	854,071	.....	854,071	.....
1903	94,308	35,285	155,692	27,897,729	13,747,362	2,755,558	.....	2,755,558	.....
1904	76,304	45,953	166,524	42,238,353	29,046,556	6,424,709	.....	6,424,709	.....
1905	88,060	18,731	177,232	46,947,177	36,564,393	3,884,505	.....	3,884,505	.....
1906	18,855	14,737	88,901	26,465,120	22,099,351	3,574,758	110,450	3,464,308	.....
1907	16,313	9,934	9,380	17,372,909	16,268,184	10,159,678	73,413	10,086,265	.....
1908	9,390	9,173	26,352	4,500,690	3,391,336	1,726,422	85,318	1,641,104	.....
1909	5,151	5,905	19,793	2,074,969	822,757	823,638	69,224	754,414	.....
1910	5,491	3,432	7,909	4,773,181	3,380,975	2,781,324	94,798	2,686,526	.....
1911	29,686	9,724	61,582	54,492,202	32,254,180	26,986,729	10,464,575	16,522,154	.....
1912	49,612	14,014	55,480	23,973,703	10,074,802	8,852,792	3,373,920	5,478,872	.....
1913	41,457	13,006	55,513	7,233,072	3,007,074	2,512,582	158,290	2,354,292	.....

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TABLE 10.—*Quantity of imports [for consumption (†)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

AUSTRIA-HUNGARY—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	3,829,208	.....	3,829,208	.....	8,578,404	710,770	4,328,114	3,539,520
1896	.....	13,190,033	.....	13,121,910	68,123	26,329,360	17,063,113	5,327,910	3,938,337
1897	.....	44,829,886	.....	41,673,749	3,156,137	16,191,847	8,078,617	3,505,790	4,607,440
1898	.....	50,605,114	.....	44,071,937	6,533,177	14,783,313	3,886,749	5,729,372	5,167,192
1899	.....	17,736,184	.....	15,334,469	2,401,715	18,701,589	5,112,518	8,144,756	5,444,315
1900	.....	1,113,334	.....	1,051,384	61,950	21,612,572	7,720,807	8,438,191	5,453,574
1901	.....	102,736	.....	60,848	41,888	20,964,411	9,213,997	6,430,441	5,319,973
1902	.....	43,211	.....	11,464	31,747	18,767,065	9,061,437	4,541,301	5,164,327
1903	.....	5,400,442	.....	5,314,682	85,760	19,741,729	8,405,783	5,677,122	5,658,824
1904	.....	15,189,406	.....	14,531,325	658,080	20,624,239	6,839,840	8,090,522	5,693,877
1905	.....	34,471,566	.....	32,679,888	1,791,678	8,591,106	6,392,458	.....	2,198,648
1906	.....	20,251,235	1,263,015	18,635,043	353,177	2,639,127	1,504,860	.....	1,134,267
1907	.....	6,342,855	17,637	6,181,919	143,299	870,376	86,420	.....	783,956
1908	.....	1,927,041	65,477	1,750,232	111,332	847,227	75,397	.....	771,830
1909	.....	233,026	33,289	68,343	131,394	1,018,305	57,761	.....	960,544
1910	.....	968,702	7,496	694,449	266,757	1,023,155	46,958	.....	976,197
1911	.....	26,110,622	3,885,167	15,732,026	6,493,429	1,394,851	168,652	.....	1,226,199
1912	.....	13,567,991	6,963,670	4,595,930	2,008,391	1,552,920	189,375	.....	1,363,545
1913	.....	3,333,135	2,403,896	652,782	276,457	1,387,355	127,867	.....	1,259,488

BELGIUM.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	45,131	196,034	185	144,527,251	90,136,876	13,441,212	.....	13,441,212	.....
1896	111,070	188,298	95	126,741,348	78,081,879	7,416,470	.....	7,416,470	.....
1897	51,770	186,389	53	135,285,743	78,376,682	7,307,160	.....	7,307,160	.....
1898	62,446	173,679	114	132,124,439	79,409,180	6,935,415	.....	6,935,415	.....
1899	65,554	169,520	119	122,500,851	79,892,673	7,184,372	.....	7,184,372	.....
1900	60,631	167,459	30	128,367,116	91,741,112	8,286,059	.....	8,286,059	.....
1901	58,471	164,218	193	127,159,037	90,860,555	9,615,161	.....	9,615,161	.....
1902	56,055	179,682	87	117,844,957	88,449,342	8,010,298	.....	8,010,298	.....
1903	70,751	162,601	148	113,754,443	83,867,336	8,469,919	.....	8,469,919	.....
1904	54,936	154,583	51	112,840,959	81,206,998	7,941,035	.....	7,941,035	.....
1905	54,916	167,878	37	125,194,486	89,892,916	7,623,064	.....	7,623,064	.....
1906	63,201	156,473	44	139,100,507	95,632,512	9,257,234	.....	9,257,234	.....
1907	74,007	148,852	101	140,479,099	101,196,177	7,628,721	.....	7,628,721	.....
1908	75,731	175,519	82	120,961,096	91,053,069	5,511,489	.....	5,511,489	.....
1909	71,556	168,445	79	123,362,617	96,708,725	5,419,169	.....	5,419,169	.....
1910	63,418	157,990	174	137,146,087	110,880,319	5,492,463	.....	5,492,463	.....
1911	51,269	172,272	34	187,905,885	153,706,104	8,254,585	.....	8,254,585	.....
1912	84,834	175,802	110	176,994,380	144,380,795	6,948,103	.....	6,948,103	.....

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TABLE 10.—*Quantity of imports [for consumption (†)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

BELGIUM—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	.....	.....	.....	.....	131,086,039	6,950,970	76,695,664	47,439,405
1896	.....	26,905,419	.....	26,905,419	.....	92,419,459	261,356	43,759,990	48,398,113
1897	.....	20,403,951	.....	20,403,951	.....	107,574,632	549,674	50,665,571	56,359,387
1898	.....	26,727,466	.....	26,727,466	.....	98,461,558	215,954	45,746,299	52,499,305
1899	.....	24,658,340	.....	24,658,340	.....	90,658,139	145,408	48,049,961	42,462,770
1900	.....	24,776,807	.....	24,776,807	.....	95,304,250	120,469	58,678,246	36,505,535
1901	.....	31,091,945	.....	31,091,945	.....	86,451,931	141,257	50,153,449	36,157,225
1902	.....	22,887,235	.....	22,887,235	.....	86,947,424	107,955	57,551,809	29,287,660
1903	.....	23,653,603	.....	23,653,603	.....	81,630,921	1,023,145	51,743,814	28,863,962
1904	.....	25,411,355	.....	25,411,355	.....	79,488,569	1,844,098	47,854,608	29,789,863
1905	.....	31,002,011	844	31,001,667	.....	86,569,411	956,856	51,268,185	34,344,370
1906	.....	30,659,899	374,802	30,285,097	.....	99,183,374	211,917	56,090,181	42,881,276
1907	.....	26,331,535	18,843	26,312,692	.....	106,519,443	300,061	67,254,764	38,964,618
1908	.....	24,791,569	1,887	24,789,682	.....	90,658,038	236,212	60,751,898	29,669,928
1909	.....	16,985,486	73,777	16,911,709	.....	100,957,962	196,379	74,377,847	26,383,736
1910	.....	12,420,851	932,409	11,488,442	.....	119,232,773	267,480	93,899,414	25,065,879
1911	.....	26,413,800	458,594	25,955,206	.....	153,237,500	461,590	119,496,313	33,279,597
1912	.....	20,722,729	38,140	20,684,589	.....	149,323,548	2,049,244	116,748,103	30,526,201

CUBA.

Year.	Live animals.			Meat and meat products.					
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Beef and beef products.			
						Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number*	*Number*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1900	364,564	1,973	41,482	92,168,982	41,152,923	52,578,746	586,306	1,562,687	50,429,753
1901	299,530	1,100	18,823	103,605,318	44,011,571	36,352,553	1,745,205	846,373	33,760,975
1902	347,648	582	4,115	97,941,085	43,112,174	35,311,615	1,328,012	948,086	33,035,517
1903	252,351	1,230	904	98,473,181	41,769,585	42,799,846	175,512	1,341,905	41,282,429
1904	386,678	323	1,393	104,386,759	46,688,110	42,889,897	138,403	1,559,571	41,191,923
1905	351,582	283	4,011	115,937,821	51,199,864	47,478,807	102,898	2,541,389	44,834,520
1906	410,425	413	4,758	119,628,392	52,992,210	43,902,266	116,331	1,545,633	42,240,302
1907	110,980	107	2,585	129,681,964	62,077,210	43,179,926	342,782	1,143,133	41,694,011
1908	59,375	3	16,626	120,439,024	56,921,818	40,875,696	563,057	2,367,844	37,944,795
1909	4,275	3	18,030	123,624,277	57,461,932	46,852,755	287,792	2,924,717	43,640,246
1910	188	12	3,577	121,294,301	61,901,402	43,915,067	111,394	5,302,152	38,501,521
1911	177	9	7,879	127,760,991	64,467,870	44,054,594	50,966	5,082,111	38,921,517
1912	313	38	18,119	133,412,776	66,672,088	46,453,729	47,257	4,762,715	41,643,757

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

CUBA—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1900	.....	39,500,236	.....	39,500,236	.....	.....	.....	.....	.....
1901	184,638	64,139,923	359,546	43,165,198	20,615,179	2,928,204	.....	.....	2,928,204
1902	136,206	60,446,723	255,628	42,164,088	18,027,007	2,046,541	.....	.....	2,046,541
1903	93,358	53,030,744	91,512	40,427,680	12,511,552	2,549,233	.....	.....	2,549,233
1904	54,859	58,842,771	119,859	45,128,539	13,594,373	2,599,232	.....	.....	2,599,232
1905	44,879	64,969,355	166,573	48,658,475	16,144,307	3,444,780	.....	.....	3,444,780
1906	27,726	71,369,762	276,762	51,446,577	19,646,423	4,328,638	.....	.....	4,328,638
1907	46,074	82,426,063	440,939	60,934,077	21,051,047	4,029,901	.....	.....	4,029,901
1908	85,394	75,896,966	492,919	54,553,974	20,847,073	3,583,968	.....	.....	3,583,968
1909	78,257	73,021,166	309,775	54,537,215	18,174,176	3,672,099	.....	.....	3,672,099
1910	40,425	73,923,375	177,821	56,599,250	17,146,304	3,415,434	.....	.....	3,415,434
1911	37,147	78,702,721	104,255	59,385,759	19,212,707	4,966,529	.....	.....	4,966,529
1912	7,525	82,735,163	98,088	61,909,373	20,727,702	4,216,359	.....	.....	4,216,359

DENMARK.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number*	*Number*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	4,510	515	2,322	41,456,095	19,985,100	3,920,292	.....	3,920,292	.....
1896	9,646	8,881	6,923	40,524,970	24,968,088	5,082,982	.....	5,082,982	.....
1897	5,174	6,531	2,154	49,934,929	32,712,497	23,177,725	549,030	21,728,218	900,477
1898	135	9	23	59,111,544	41,006,804	23,812,511	37,029	22,341,919	1,433,563
1899	1,130	1,484	54	64,104,094	46,255,572	27,653,711	258,468	26,160,056	1,235,187
1900	1,887	1,747	115	80,696,499	57,426,869	31,306,652	423,522	28,430,960	2,452,170
1901	1,181	808	74	90,551,191	65,478,416	36,289,844	215,346	33,454,400	2,620,098
1902	2,258	1,598	1,081	86,777,720	61,640,779	36,260,730	191,395	33,138,639	2,930,696
1903	4,920	1,615	677	89,714,811	62,926,274	39,180,380	217,200	34,500,220	4,462,960
1904	5,932	2,019	329	93,061,063	64,645,299	38,240,911	206,693	32,377,005	5,657,213
1905	12,651	2,464	524	104,785,218	77,894,945	43,923,694	378,777	36,192,891	7,352,026
1906	10,655	1,293	65	113,990,620	84,414,538	52,152,602	326,891	44,140,664	7,685,047
1907	4,120	219	142	134,251,033	96,949,231	53,323,765	346,563	45,198,524	7,778,678
1908	1,696	324	129	123,265,983	91,320,619	44,559,928	87,523	39,397,838	5,074,567
1909	2,952	336	823	79,958,843	60,629,917	39,823,608	148,017	35,079,705	4,595,886
1910	19,354	393	2,838	37,163,604	29,210,069	21,707,153	194,666	20,909,970	602,517
1911	29,590	666	17,306	38,899,946	26,994,004	22,023,514	1,163,588	19,943,253	916,673
1912	8,844	700	7,180	33,113,094	21,875,806	17,897,164	988,102	16,251,650	657,412

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

DENMARK—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	11,180,929	.....	.....	11,180,929	26,354,874	.....	16,064,808	10,290,066
1896	.....	7,977,333	.....	.....	7,977,333	27,464,655	.....	19,885,106	7,579,549
1897	1,516,353	8,764,477	360,325	.....	8,404,152	16,476,374	.....	10,984,279	5,492,095
1898	1,881,408	9,067,675	23,501	.....	9,044,174	24,349,950	.....	18,664,885	5,685,065
1899	1,848,096	8,434,918	54,840	.....	8,380,078	26,167,369	.....	20,095,516	6,071,853
1900	1,416,014	11,569,200	79,400	.....	11,489,800	36,404,633	.....	28,995,909	7,408,724
1901	1,047,720	13,757,702	107,135	.....	13,650,567	39,455,925	.....	32,024,016	7,431,909
1902	2,206,305	11,502,287	213,700	.....	11,288,587	36,808,398	.....	28,502,140	8,306,258
1903	1,464,862	12,953,727	614,000	.....	12,339,727	36,115,842	.....	28,426,054	7,689,788
1904	1,910,430	9,543,747	112,032	.....	9,431,715	43,365,975	.....	32,268,294	11,097,681
1905	2,789,134	54,987,606	249,376	41,702,054	13,036,176	3,084,784	.....	.....	3,084,784
1906	3,577,271	54,492,079	13,338	40,273,874	14,204,867	3,768,668	.....	.....	3,768,668
1907	5,043,796	69,635,712	83,995	51,750,707	17,801,010	6,247,760	.....	.....	6,247,760
1908	4,288,701	69,961,441	109,717	51,922,781	17,928,943	4,455,913	.....	.....	4,455,913
1909	3,905,301	32,540,007	130,733	25,550,212	6,859,062	3,689,927	.....	.....	3,689,927
1910	4,605,409	8,805,173	133,599	8,065,970	605,604	2,045,869	.....	234,129	1,811,740
1911	5,922,658	8,236,164	1,263,015	6,782,231	190,918	2,717,610	.....	268,520	2,449,090
1912	5,291,922	7,415,173	1,829,157	5,406,782	179,234	2,508,835	.....	217,374	2,291,461

FRANCE.

Year.	Live animals.			Meat and meat products.					
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Beef and beef products.			
						Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	149,993	1,789,680	85,039	130,660,929	76,031,716	32,381,248	.....	32,381,248	.....
1896	86,612	1,343,774	75,713	151,306,986	110,657,702	62,443,389	.....	62,443,389	.....
1897	59,008	1,364,922	7,279	139,223,536	111,542,778	56,446,569	.....	56,446,569	.....
1898	50,254	1,419,551	19,458	124,271,484	89,614,284	45,337,787	.....	45,337,787	.....
1899	32,552	1,196,288	22,092	136,688,178	82,718,316	41,359,255	.....	41,359,255	.....
1900	23,444	1,094,999	9,006	110,841,347	67,841,700	33,388,471	.....	33,388,471	.....
1901	36,461	1,316,599	8,178	86,621,195	62,694,972	36,211,456	.....	36,211,456	.....
1902	43,793	1,513,758	7,662	56,305,844	35,757,953	22,907,648	.....	22,907,648	.....
1903	42,475	1,668,007	12,396	77,682,285	57,395,681	41,835,212	.....	41,835,212	.....
1904	23,544	1,164,752	6,570	55,619,876	38,591,698	22,923,776	.....	22,923,776	.....
1905	27,684	959,724	9,263	66,894,996	49,695,589	30,508,384	.....	30,508,384	.....
1906	21,009	1,045,245	10,507	65,285,098	48,304,686	28,929,330	.....	28,929,330	.....
1907	31,891	1,184,441	430,116	85,490,475	59,267,007	30,978,287	.....	30,978,287	.....
1908	69,309	1,372,760	262,596	73,018,663	44,502,937	19,262,913	.....	19,262,913	.....
1909	44,171	1,211,589	19,348	61,365,703	40,065,078	28,412,003	.....	28,412,003	.....
1910	44,777	1,272,812	18,134	49,911,262	29,488,509	19,021,289	.....	19,021,289	.....
1911	24,772	970,590	218,971	121,069,136	73,509,741	34,913,809	.....	34,913,809	.....
1912	19,401	814,423	396,940	120,300,612	72,595,274	36,462,982	.....	36,462,982	.....

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TABLE 10.—*Quantity of imports [for consumption (f)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

FRANCE—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	5,180,467	75,990,465	22,959,701	38,102,495	14,928,269	17,108,749	5,011,075	5,547,973	6,549,701
1896	4,641,900	52,471,787	8,888,952	32,886,487	10,696,348	31,749,910	4,906,177	15,227,826	11,515,907
1897	2,135,877	59,809,914	3,825,500	47,365,453	8,618,961	20,831,176	4,206,388	7,730,756	8,894,032
1898	998,134	56,853,550	6,454,560	36,311,414	14,087,576	21,082,013	3,744,533	7,965,083	9,372,397
1899	586,762	74,775,573	15,497,201	33,990,855	25,287,517	19,916,588	3,050,609	7,368,206	8,897,773
1900	423,388	67,888,169	10,741,009	28,017,007	19,130,153	19,141,369	4,267,471	6,436,222	8,437,676
1901	163,404	28,804,463	1,970,961	15,962,191	10,871,311	21,441,872	3,426,494	10,521,325	7,494,053
1902	251,609	15,925,996	1,413,141	4,751,639	9,761,116	17,220,691	2,881,183	8,098,666	6,240,842
1903	270,298	19,032,486	1,422,488	8,056,751	9,553,247	16,544,289	2,639,398	7,503,718	6,401,175
1904	184,524	15,641,438	249,821	7,020,539	8,371,078	16,869,838	2,259,537	8,647,383	5,962,918
1905	361,629	14,422,489	136,551	6,114,154	8,171,784	21,602,494	2,251,271	13,073,051	6,278,172
1906	24,081	15,579,232	41,222	7,272,605	8,265,405	20,752,455	2,032,454	12,102,751	6,617,250
1907	58,080	32,172,112	327,729	15,838,722	16,005,661	22,281,996	2,212,263	12,449,998	7,619,735
1908	133,989	22,607,702	1,485,124	15,381,494	15,741,084	21,014,059	2,203,954	9,858,530	8,951,575
1909	231,263	13,841,581	175,486	3,454,388	10,211,707	18,880,856	2,681,455	8,198,687	8,000,714
1910	155,204	11,035,787	53,572	1,745,602	9,236,613	19,698,982	3,070,346	8,721,618	7,907,018
1911	622,359	57,958,872	13,439,683	26,398,762	18,100,427	27,594,096	5,521,641	12,197,170	9,875,285
1912	1,193,570	53,392,105	8,190,309	24,286,535	20,915,261	29,251,955	5,250,475	11,845,757	12,155,723

GERMANY.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1896	291,025	4,210	347,814	322,587,400	214,733,900	115,345,200	73,187,100	42,158,100	.....
1896	217,805	3,359	110,532	341,330,100	245,114,500	101,256,500	58,854,100	42,402,400	.....
1897	217,567	3,819	91,880	443,307,800	297,228,600	96,309,500	9,918,600	81,605,800	4,785,100
1898	186,228	3,113	74,833	596,549,700	367,112,800	139,796,800	32,000,300	102,717,700	5,078,800
1899	197,854	2,431	71,071	554,083,700	341,504,600	136,401,700	42,478,200	88,421,400	5,502,100
1900	214,409	2,171	69,713	503,855,500	338,118,900	149,029,300	33,991,700	109,496,300	5,541,300
1901	238,335	2,157	78,559	493,950,300	326,626,400	142,504,700	30,984,400	104,971,500	6,548,800
1902	331,576	2,807	72,451	468,648,900	293,559,000	143,003,900	30,000,300	104,803,700	8,199,900
1903	352,783	3,795	80,621	425,771,600	297,201,800	141,800,500	23,474,200	108,500,700	9,825,600
1904	321,879	2,777	70,146	435,102,400	314,976,400	147,383,000	30,608,800	107,930,800	8,843,400
1905	336,619	2,972	71,415	546,255,568	366,609,768	171,138,909	43,857,651	111,741,033	15,540,225
1906	271,299	12,165	107,544	590,303,256	401,807,310	192,851,574	42,724,046	130,076,030	20,051,498
1907	205,872	10,899	80,631	484,285,363	362,458,506	165,912,243	28,996,883	130,686,042	6,229,318
1908	217,470	10,532	97,628	456,804,584	339,675,068	127,051,759	22,288,506	99,822,524	4,940,729
1909	209,540	7,511	123,503	452,962,407	317,871,133	140,402,376	26,371,866	110,489,261	3,541,249
1910	227,870	15,423	104,049	389,172,087	257,537,845	166,554,223	34,994,057	128,481,883	3,078,283
1911	186,923	1,485	103,710	483,742,593	343,904,593	174,360,932	39,734,388	130,800,020	3,826,524
1912	205,902	5,695	134,315	591,063,180	378,974,047	228,764,067	79,114,496	144,729,565	4,920,006

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

GERMANY—Continued.

Year.	Meat and meat products—continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	172,575,800	.....	172,575,800	.....	34,666,400	.....	.....	34,666,400
1896	.....	202,712,100	.....	202,712,100	.....	37,361,500	.....	.....	37,361,500
1897	146,600	293,367,000	24,716,700	214,467,600	54,182,700	53,484,700	344,600	1,155,200	51,984,900
1898	244,300	385,264,800	33,500,800	257,036,700	94,727,300	71,243,800	335,800	7,358,400	63,549,600
1899	196,900	342,522,900	23,866,600	247,507,000	71,149,300	74,962,200	197,100	5,576,200	69,188,900
1900	214,300	276,854,200	16,289,100	224,201,000	36,364,100	77,757,700	167,600	4,421,600	73,168,500
1901	294,500	296,089,600	38,187,400	215,906,100	41,996,100	55,061,500	233,500	5,748,800	49,079,200
1902	408,500	265,922,600	42,152,600	181,381,100	42,388,900	59,313,900	207,900	7,374,200	51,731,800
1903	339,100	223,402,500	18,424,900	182,925,900	22,051,700	60,229,500	142,600	5,775,200	54,311,700
1904	378,800	227,805,400	10,814,600	204,241,500	12,749,300	59,535,200	128,600	2,804,100	56,602,500
1905	654,987	314,588,924	28,560,373	254,868,735	31,159,816	59,872,748	129,190	.....	59,743,558
1906	626,988	333,514,534	30,637,106	271,603,634	31,273,794	63,310,160	10,362	127,646	63,172,152
1907	576,503	245,644,248	5,244,082	231,129,162	9,271,004	72,152,369	.....	643,302	71,509,067
1908	420,417	257,978,985	10,723,615	239,706,599	7,548,771	71,353,423	.....	145,945	71,207,478
1909	583,558	239,382,743	22,626,251	206,816,392	9,940,100	72,593,730	.....	565,480	72,028,250
1910	651,239	147,588,932	8,211,474	128,781,048	10,596,410	74,377,693	.....	274,914	74,102,779
1911	487,558	227,777,509	3,128,989	212,832,966	11,815,554	81,116,494	.....	271,607	80,844,887
1912	716,496	280,964,144	29,123,427	234,012,558	17,828,159	80,618,474	.....	231,924	80,386,550

ITALY.

Year.	Live animals.			Meat and meat products.					
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Beef and beef products.			
						Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	17,426	8,769	3,453	38,528,243	36,263,166	.....	.....	.....	.....
1896	25,035	11,150	2,271	46,803,683	43,942,746	.....	.....	.....	.....
1897	17,350	13,286	3,779	53,142,414	49,227,446	.....	.....	.....	.....
1898	12,510	9,558	1,288	67,006,841	51,227,479	.....	.....	.....	.....
1899	16,855	8,159	1,582	70,720,967	55,626,802	.....	.....	.....	.....
1900	14,595	5,633	2,415	62,656,240	51,078,446	.....	.....	.....	.....
1901	13,931	3,367	2,316	55,949,780	48,336,117	.....	.....	.....	.....
1902	18,035	4,781	1,720	47,435,750	41,629,878	.....	.....	.....	.....
1903	10,150	9,998	4,231	49,362,589	38,882,257	.....	.....	.....	.....
1904	21,490	16,325	4,759	65,686,934	55,321,903	.....	.....	.....	.....
1905	17,766	6,551	1,604	68,357,812	60,284,787	.....	.....	.....	.....
1906	24,907	4,486	1,036	66,879,628	58,292,270	101,191	.....	101,191	.....
1907	12,011	5,263	10,818	65,158,937	47,539,774	215,610	.....	215,610	.....
1908	138,295	8,540	18,473	78,773,224	56,696,580	267,198	.....	267,198	.....
1909	118,584	7,049	30,472	85,466,610	66,938,931	106,482	.....	106,482	.....
1910	169,984	4,419	8,144	65,262,994	53,859,921	142,638	.....	142,638	.....
1911	154,222	1,128	1,845	101,354,501	67,697,534	153,440	.....	153,440	.....
1912	55,896	2,803	1,951	108,947,364	61,319,185	112,876	.....	112,876	.....

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

ITALY—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	968,270	.....	968,270	.....	37,859,973	68,784	35,294,896	2,496,293
1896	.....	1,167,788	.....	1,167,788	.....	45,635,895	53,131	42,774,958	2,807,806
1897	.....	3,185,679	.....	3,185,679	.....	49,956,735	57,541	46,041,767	3,857,427
1898	.....	7,101,749	.....	7,101,749	.....	59,905,092	64,155	44,125,730	15,715,207
1899	.....	20,444,121	.....	8,247,491	12,196,630	50,276,846	89,728	47,379,311	2,807,807
1900	.....	14,630,313	.....	6,398,254	8,232,059	48,025,927	64,155	44,680,192	3,281,580
1901	.....	8,026,808	.....	3,550,323	4,476,485	47,922,972	40,786	44,785,794	3,096,392
1902	.....	3,598,825	.....	1,594,824	2,004,001	43,836,925	39,683	40,035,054	3,762,188
1903	.....	11,046,920	.....	4,631,470	6,415,450	38,315,669	38,360	34,250,787	4,026,522
1904	.....	10,374,731	.....	3,582,070	6,792,661	55,312,203	77,163	51,739,833	3,495,208
1905	.....	5,608,944	.....	2,528,456	3,080,488	62,748,868	273,929	57,756,331	4,719,608
1906	.....	5,538,396	.....	2,190,050	3,348,346	61,240,041	1,103,623	56,001,029	4,135,389
1907	.....	16,291,774	.....	3,962,239	12,429,535	48,651,553	476,414	43,461,925	4,713,214
1908	.....	18,547,520	.....	4,782,659	13,764,861	59,958,506	2,817,088	51,646,723	5,494,745
1909	.....	13,599,957	.....	5,256,428	8,343,529	71,760,171	4,163,826	61,576,021	6,020,322
1910	.....	4,648,178	.....	2,328,939	2,319,239	60,472,178	2,528,015	51,388,344	6,555,819
1911	.....	15,278,319	.....	6,299,865	8,978,454	85,922,742	17,176,480	61,244,229	7,502,033
1912	.....	12,373,979	.....	3,561,531	8,812,448	96,460,509	32,074,064	57,644,778	6,741,667

NETHERLANDS.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number	*Number*	*Number*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	80	9,047	22	188,676,790	171,519,825	137,867,893	.....	137,867,893	.....
1896	583	45,476	56	215,796,926	192,174,226	145,921,911	.....	145,921,911	.....
1897	183	61,135	2,578	263,358,671	231,161,925	156,083,311	.....	156,083,311	.....
1898	227	43,206	54	298,988,001	263,093,172	182,996,444	.....	182,996,444	.....
1899	1,241	34,237	32	290,761,094	261,990,717	177,520,167	.....	177,520,167	.....
1900	1,562	62,190	986	291,369,874	264,358,496	194,442,565	.....	194,442,565	.....
1901	1,441	73,981	11	297,149,381	271,438,331	201,788,592	.....	201,788,592	.....
1902	1,665	57,897	71	263,733,298	243,169,803	186,650,216	.....	186,656,216	.....
1903	2,169	53,705	32	290,672,463	275,490,674	216,283,789	.....	216,283,789	.....
1904	1,617	51,244	32	300,586,756	283,067,551	207,124,134	.....	207,124,134	.....
1905	2,007	53,639	128	343,309,118	317,986,160	225,574,994	243,809	225,331,185	.....
1906	1,992	15,186	1,201	352,447,010	324,832,212	240,189,448	229,069	239,960,379	.....
1907	1,570	13,819	65	313,593,791	288,437,530	211,337,833	187,534	211,200,299	.....
1908	1,363	10,451	71	296,405,639	275,947,779	184,296,357	178,848	184,117,509	.....
1909	1,677	9,053	8,873	289,071,796	272,526,395	209,489,246	171,599	209,317,647	.....
1910	2,160	6,143	22,254	262,819,846	249,139,114	217,626,961	274,010	217,352,951	.....
1911	645	265	11	333,586,234	312,667,016	233,950,827	348,256	233,602,571	.....
1912	1,373	325	119	369,442,143	340,613,529	250,181,154	2,317,431	247,863,723	.....

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TABLE 10.—*Quantity of imports [for consumption (†)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

NETHERLANDS—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	33,651,932	.....	33,651,932	.....	17,156,965	11,477	.....	17,145,488
1896	.....	46,252,315	.....	46,252,315	.....	23,622,700	6,546	.....	23,616,154
1897	.....	75,078,614	.....	75,078,614	.....	32,196,746	4,947	.....	32,191,799
1898	.....	80,096,728	.....	80,096,728	.....	35,894,829	15,875	.....	35,878,954
1899	.....	84,470,550	.....	84,470,550	.....	28,770,377	14,079	.....	28,756,298
1900	.....	69,915,931	.....	69,915,931	.....	27,011,378	4,275	.....	27,007,103
1901	.....	69,649,739	.....	69,649,739	.....	25,711,050	4,173	.....	25,706,877
1902	.....	56,513,587	.....	56,513,587	.....	20,563,495	3,770	.....	20,559,725
1903	.....	59,206,885	.....	59,206,885	.....	15,181,789	7,544	.....	15,174,245
1904	.....	75,943,417	.....	75,943,417	.....	17,519,205	4,542	.....	17,514,663
1905	1,268	104,805,899	183,498	92,654,975	11,967,426	12,926,957	2,736	.....	12,924,221
1906	181	99,174,180	129,412	84,871,833	14,172,935	13,083,201	375	.....	13,082,826
1907	493	84,635,595	16,700	77,237,231	7,381,664	17,569,870	1,470	.....	17,568,400
1908	1,466	98,199,848	39,409	91,830,270	6,330,169	13,907,968	1,695	.....	13,906,273
1909	5,060	65,969,819	110,675	63,208,748	2,550,396	13,707,671	.....	.....	13,707,671
1910	18,933	33,772,938	42,033	31,786,163	1,944,742	11,401,014	187,834	.....	11,213,180
1911	115,944	83,834,772	49,359	79,064,445	4,720,968	15,684,691	607,094	.....	15,077,597
1912	68,854	103,300,164	2,320,518	92,749,806	8,229,840	15,891,971	1,001,038	.....	14,890,933

NORWAY.

Year.	Live animals.			Meat and meat products.					
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Beef and beef products.			
						Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	21,190	3,595	728	47,714,232	13,507,057	10,482,702	.....	10,335,003	147,699
1896	19,826	4,193	1,194	61,980,839	20,029,168	14,288,892	.....	14,094,700	194,192
1897	14,600	2,037	1,360	51,761,109	22,389,611	14,711,649	.....	14,548,432	163,217
1898	9,815	776	186	57,100,458	23,582,621	14,587,302	.....	14,445,080	142,222
1899	13,344	2,392	46	64,385,143	26,455,950	17,850,040	.....	17,442,044	407,996
1900	13,895	2,753	4	61,426,857	29,750,998	19,743,033	.....	19,598,229	144,804
1901	18,174	1,542	19	62,174,666	29,551,215	21,038,003	.....	20,811,300	226,703
1902	11,910	1,373	14	52,374,323	27,441,349	19,826,473	.....	19,631,961	194,512
1903	14,396	2,036	15	50,980,372	28,791,085	21,827,230	.....	21,727,167	100,063
1904	13,927	2,190	21	48,898,924	27,325,209	19,993,298	.....	19,841,267	152,031
1905	12,772	1,183	8	51,009,636	28,921,795	21,130,983	.....	21,034,287	96,696
1906	10,710	1,261	26	54,017,318	31,235,632	22,941,936	.....	22,879,074	62,862
1907	9,718	1,116	33	48,777,477	28,076,177	21,490,834	.....	21,445,820	45,014
1908	13,482	1,617	.....	49,178,498	27,882,480	21,057,264	.....	20,986,756	70,508
1909	13,506	1,395	1	43,958,648	26,006,498	20,370,800	.....	20,335,341	35,459
1910	16,015	1,753	7	39,856,096	24,723,839	20,179,365	.....	20,161,089	18,276
1911	15,690	1,778	3	42,625,890	24,434,860	20,119,537	.....	20,098,765	20,772
1912	12,953	1,602	6	39,869,143	24,823,730	20,492,981	.....	20,454,852	38,129

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

NORWAY—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	21,248,693	.....	3,172,054	18,076,639	15,982,837	.....	.....	15,982,837
1896	.....	30,139,132	.....	5,934,468	24,204,664	17,561,815	.....	.....	17,561,815
1897	.....	23,494,799	.....	7,841,179	15,653,620	13,554,661	.....	.....	13,554,661
1898	.....	28,183,674	.....	9,137,541	19,046,133	14,329,482	.....	.....	14,329,482
1899	.....	32,184,725	.....	9,013,906	23,170,819	14,350,378	.....	.....	14,350,378
1900	.....	28,495,667	.....	10,152,769	18,342,898	13,188,157	.....	.....	13,188,157
1901	.....	25,163,670	.....	8,739,915	16,423,755	15,967,993	.....	.....	15,967,993
1902	.....	17,150,580	.....	7,809,388	9,341,292	15,397,170	.....	.....	15,397,170
1903	.....	16,623,335	.....	7,063,918	9,559,417	12,529,807	.....	.....	12,529,807
1904	.....	16,936,546	.....	7,483,942	9,452,604	11,969,080	.....	.....	11,969,080
1905	.....	17,754,173	.....	7,887,508	9,866,665	12,124,480	.....	.....	12,124,480
1906	.....	19,865,165	.....	8,356,558	11,508,607	11,210,217	.....	.....	11,210,217
1907	.....	17,143,367	.....	6,630,357	10,513,010	10,143,276	.....	.....	10,143,276
1908	.....	15,735,046	.....	6,895,724	8,839,322	12,386,188	.....	.....	12,386,188
1909	.....	9,166,991	.....	5,671,157	3,495,834	14,420,857	.....	.....	14,420,857
1910	.....	7,855,364	.....	4,562,750	3,292,614	11,821,367	.....	.....	11,821,367
1911	.....	10,520,681	.....	4,336,095	6,184,586	11,985,672	.....	.....	11,985,672
1912	.....	9,242,808	.....	4,368,878	4,873,930	10,133,354	.....	.....	10,133,354

RUSSIA.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	.....	.....	22,873,774	22,690,000	.....	.....	.....	.....
1896	42,482	388,846	.....	31,121,936	31,010,061	.....	.....	.....	.....
1897	32,925	514,604	.....	53,164,158	53,106,343	.....	.....	.....	.....
1898	53,101	379,527	.....	85,904,237	85,840,969	1,610,812	.....	1,610,812	.....
1899	54,315	424,238	16,547	69,855,559	69,164,050	1,540,538	.....	1,540,538	.....
1900	46,520	322,237	10,777	45,932,080	44,715,864	543,016	.....	543,016	.....
1901	49,753	442,147	11,175	67,100,249	65,924,443	879,508	.....	879,508	.....
1902	67,396	406,214	9,991	32,350,900	29,804,318	1,010,414	.....	1,010,414	.....
1903	88,802	445,467	19,297	55,222,796	49,972,653	889,908	.....	889,908	.....
1904	51,556	444,592	14,991	77,000,146	72,333,758	614,279	.....	614,279	.....
1905	39,193	331,856	14,834	76,619,264	71,375,252	766,097	.....	766,097	.....
1906	49,189	386,107	213,226	96,814,264	85,217,613	1,046,657	.....	1,046,657	.....
1907	49,147	361,880	31,767	101,106,522	89,679,927	521,974	.....	521,974	.....
1908	71,572	534,906	27,111	134,907,634	112,434,530	950,886	.....	950,886	.....
1909	103,523	563,295	41,786	131,231,278	103,735,101	983,568	.....	983,568	.....
1910	135,904	461,871	35,088	141,084,223	118,464,429	3,751,253	.....	3,751,253	.....
1911	133,715	545,038	33,072	132,487,138	106,995,185	3,523,165	.....	3,523,165	.....
1912	108,865	744,384	36,342	136,140,417	100,095,545	2,001,407	.....	2,001,407	.....

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

RUSSIA—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	.....	.....	.....	.....	22,873,774	.....	22,690,000	183,774
1896	.....	.....	.....	.....	.....	31,121,936	.....	31,010,061	111,875
1897	.....	.....	.....	.....	.....	53,164,158	.....	53,106,343	57,815
1898	.....	.....	.....	.....	.....	84,293,425	.....	84,230,157	63,268
1899	.....	.....	.....	.....	.....	68,315,021	.....	67,623,512	691,509
1900	.....	.....	.....	.....	.....	45,389,064	220,428	44,172,848	995,788
1901	.....	.....	.....	.....	.....	66,220,741	285,393	65,044,935	890,413
1902	.....	.....	.....	.....	.....	31,340,496	516,329	28,793,904	2,030,253
1903	.....	.....	.....	.....	.....	54,332,888	3,283,231	49,082,745	1,966,912
1904	.....	.....	.....	.....	.....	76,385,867	1,859,376	71,719,479	2,807,012
1905	.....	.....	.....	.....	.....	75,853,167	1,351,594	70,609,155	3,892,418
1906	.....	.....	.....	.....	.....	95,767,607	2,383,306	84,170,956	9,212,845
1907	.....	.....	.....	.....	.....	100,584,548	7,609,978	89,157,953	3,816,617
1908	.....	.....	.....	.....	.....	133,956,748	15,732,975	111,483,644	6,740,129
1909	.....	.....	.....	.....	.....	130,247,710	24,659,192	102,751,533	2,836,985
1910	.....	.....	.....	.....	.....	137,332,970	20,422,006	114,713,176	2,197,789
1911	.....	.....	.....	.....	.....	128,963,973	21,953,910	103,472,020	3,538,043
1912	.....	.....	.....	.....	.....	134,139,010	30,294,270	98,094,138	5,750,602

SPAIN.

Year.	Live animals.			Meat and meat products.					
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Beef and beef products.			
						Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	18,546	314,926	32,918	40,092,944	35,932,243	762,208	.....	.....	762,208
1896	15,143	394,623	13,095	40,784,475	36,316,167	355,370	.....	.....	355,370
1897	19,180	308,271	24,668	38,723,070	32,401,462	493,624	.....	.....	493,624
1898	13,643	389,477	34,867	23,466,393	16,967,141	256,600	.....	.....	256,600
1899	17,266	301,238	19,282	48,054,231	39,816,664	254,274	.....	.....	254,274
1900	26,063	500,027	43,471	42,778,308	35,928,211	132,143	.....	.....	132,143
1901	28,710	397,478	31,225	38,233,163	33,952,612	441,621	.....	.....	441,621
1902	31,640	380,892	29,108	38,568,673	33,580,474	1,143,015	.....	.....	1,143,015
1903	19,839	457,283	39,982	38,211,370	32,278,265	1,060,831	.....	.....	1,060,831
1904	20,924	431,393	46,365	30,558,641	24,892,100	1,401,300	.....	.....	1,401,300
1905	16,440	385,015	19,346	33,580,289	29,072,514	913,245	.....	.....	913,245
1906	29,745	387,868	42,324	37,281,551	29,275,137	853,991	.....	.....	853,991
1907	16,252	308,927	43,593	39,847,099	32,751,105	1,024,669	.....	.....	1,024,669
1908	14,384	309,916	22,984	34,642,692	28,388,575	897,808	.....	.....	897,808
1909	11,674	239,378	36,227	37,162,677	31,625,000	1,058,367	.....	.....	1,058,367
1910	15,891	266,366	15,214	33,212,220	26,978,039	1,691,411	.....	.....	1,691,411
1911	20,224	269,496	44,287	37,284,512	31,348,636	1,713,704	.....	.....	1,713,704
1912	14,096	257,732	43,318	36,052,286	30,314,884	1,010,077	.....	.....	1,010,077

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

SPAIN—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	1,455,196	.....	.....	1,455,196	37,875,540	.....	35,932,243	1,943,297
1896	.....	1,872,771	.....	.....	1,872,771	38,556,334	.....	36,316,167	2,240,167
1897	.....	3,877,729	.....	.....	3,877,729	34,351,717	.....	32,401,462	1,950,255
1898	.....	4,690,426	.....	.....	4,690,426	18,519,367	.....	16,967,141	1,552,226
1899	.....	5,865,031	.....	.....	5,865,031	41,934,926	.....	39,816,664	2,118,262
1900	.....	3,251,174	.....	.....	3,251,174	39,394,991	.....	35,928,211	3,466,780
1901	.....	1,392,891	.....	.....	1,392,891	36,396,651	.....	33,952,612	2,446,039
1902	.....	603,348	.....	.....	603,348	36,822,310	.....	33,580,474	3,241,836
1903	.....	444,170	.....	.....	444,170	36,706,369	.....	32,278,265	4,428,104
1904	.....	866,569	.....	.....	866,569	28,290,772	.....	24,892,100	3,398,672
1905	.....	1,538,562	.....	.....	1,538,562	31,128,482	.....	29,072,514	2,055,968
1906	.....	4,273,597	.....	.....	4,273,597	32,153,963	28,294	29,275,137	2,850,532
1907	.....	2,677,231	.....	.....	2,677,231	36,145,199	17,357	32,751,105	3,376,737
1908	.....	1,727,674	.....	.....	1,727,674	32,017,210	17,597	28,388,575	3,611,038
1909	.....	611,296	.....	.....	611,296	35,493,014	8,514	31,625,000	3,859,500
1910	.....	402,556	.....	.....	402,556	31,118,253	8,025	26,978,039	4,132,189
1911	.....	484,456	.....	.....	484,456	35,086,352	13,913	31,348,636	3,723,803
1912	.....	647,346	.....	.....	647,346	34,394,863	6,927	30,314,884	4,073,052

SWEDEN.

Year.	Live animals.			Meat and meat products.					
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Beef and beef products.			
						Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number	*Number*	*Number*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	1,988	128	567	25,923,916	9,134,833	8,785,381	.....	8,785,381	.....
1896	2,804	119	354	40,302,501	9,746,418	9,665,557	.....	9,665,557	.....
1897	1,813	165	1,118	26,949,014	13,526,913	12,727,356	.....	12,727,356	.....
1898	1,973	66	1,131	43,179,151	16,413,616	14,645,309	.....	14,645,309	.....
1899	1,976	96	780	52,279,729	21,751,462	18,342,691	.....	18,342,691	.....
1900	1,772	95	414	48,909,239	20,183,392	15,607,770	.....	15,607,770	.....
1901	2,571	72	928	49,713,108	22,449,469	17,528,307	.....	17,528,307	.....
1902	1,571	64	509	38,004,091	20,659,922	16,248,564	.....	16,248,564	.....
1903	3,013	277	452	37,793,789	21,338,874	17,584,145	.....	17,584,145	.....
1904	3,520	303	366	35,422,604	20,441,172	16,382,764	.....	16,382,764	.....
1905	4,179	314	419	30,756,865	18,333,840	14,054,590	.....	14,054,590	.....
1906	5,944	173	1,234	48,872,791	26,980,620	20,874,017	.....	20,874,017	.....
1907	4,726	140	740	45,694,136	23,185,522	21,981,480	3,419,394	17,584,628	977,458
1908	4,817	91	662	38,804,114	21,748,852	19,185,554	2,769,053	15,592,322	824,179
1909	3,845	160	616	24,941,666	17,262,690	13,241,396	1,195,356	11,457,046	588,994
1910	1,847	213	573	19,422,731	12,621,842	11,238,704	791,493	10,123,704	323,507
1911	1,577	114	436	23,453,962	13,771,511	11,975,506	842,598	10,897,161	235,747

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

SWEDEN—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	13,841,084	.....	349,452	13,491,632	3,297,451	.....	.....	3,297,451
1896	.....	27,172,202	.....	80,861	27,091,341	3,464,742	.....	.....	3,464,742
1897	.....	10,393,474	.....	799,557	9,593,917	3,828,184	.....	.....	3,828,184
1898	.....	24,340,066	.....	1,768,807	22,571,759	4,193,776	.....	.....	4,193,776
1899	.....	28,733,746	.....	3,408,771	25,324,975	5,203,292	.....	.....	5,203,292
1900	.....	28,109,616	.....	4,575,622	23,533,994	5,191,853	.....	.....	5,191,853
1901	.....	27,285,264	.....	4,921,162	22,364,102	4,899,537	.....	.....	4,899,537
1902	.....	16,961,144	.....	4,411,358	12,549,786	4,794,383	.....	.....	4,794,383
1903	.....	15,087,292	.....	3,754,729	11,332,563	5,122,352	.....	.....	5,122,352
1904	.....	15,225,214	.....	4,058,408	11,166,806	3,814,626	.....	.....	3,814,626
1905	.....	12,825,164	.....	4,279,250	8,545,914	3,877,111	.....	.....	3,877,111
1906	.....	22,169,199	.....	6,106,603	16,062,596	5,829,575	.....	.....	5,829,575
1907	1,569,058	19,975,563	.....	5,448,653	14,526,910	2,168,035	122,188	152,241	1,893,606
1908	1,315,780	15,056,566	.....	4,884,443	10,172,123	3,246,214	135,812	1,272,087	1,838,315
1909	1,542,911	6,012,050	.....	3,604,858	2,407,192	4,145,309	119,778	2,200,786	1,824,745
1910	1,267,985	4,024,389	.....	1,674,440	2,349,949	2,891,653	70,005	823,698	1,997,950
1911	1,330,710	7,267,008	.....	2,258,760	5,008,248	2,880,738	72,426	615,590	2,192,722

SWITZERLAND.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	94,349	82,720	117,304	25,133,572	11,920,832	5,553,663	.....	5,553,663	.....
1896	77,246	89,945	85,426	25,946,857	12,293,192	6,118,046	.....	6,118,046	.....
1897	73,691	83,647	119,430	24,401,558	10,859,968	5,737,970	.....	5,737,970	.....
1898	73,584	82,131	105,468	31,883,241	13,763,234	7,268,418	.....	7,268,418	.....
1899	63,076	82,102	97,433	30,876,392	13,034,166	6,219,679	.....	6,219,679	.....
1900	66,103	89,895	68,717	30,519,023	12,521,371	6,478,943	.....	6,478,943	.....
1901	63,403	94,207	73,616	31,327,457	10,949,255	6,315,140	.....	6,315,140	.....
1902	71,094	98,135	86,253	28,838,440	10,687,786	7,303,471	.....	7,303,471	.....
1903	87,215	105,206	91,731	31,366,700	12,397,030	8,302,826	.....	8,302,826	.....
1904	77,470	105,739	91,284	30,722,951	10,889,290	7,281,426	.....	7,281,426	.....
1905	70,468	102,615	76,279	33,815,037	11,610,085	7,672,449	.....	7,672,449	.....
1906	58,881	101,978	96,000	27,937,794	8,695,825	9,096,621	4,580,718	4,515,903	.....
1907	52,585	115,420	90,325	33,991,405	10,185,252	9,753,151	4,629,440	5,123,711	.....
1908	51,936	115,682	55,170	37,078,947	8,538,416	8,668,267	4,997,828	3,670,439	.....
1909	82,125	118,140	50,942	32,021,594	6,377,467	6,866,667	3,676,170	3,190,497	.....
1910	96,805	125,338	111,318	29,531,941	5,745,629	6,545,017	3,242,967	3,302,050	.....
1911	79,705	105,412	93,969	57,849,146	9,020,342	9,791,070	5,371,067	4,420,003	.....
1912	92,653	115,558	34,262	65,264,096	8,436,783	9,664,525	5,653,476	4,011,049	.....

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

SWITZERLAND—Continued.

Year.	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	.....	6,367,169	.....	6,367,169	.....	13,212,740	5,037,782	.....	8,174,958
1896	.....	6,175,146	.....	6,175,146	.....	13,653,665	4,790,423	.....	8,863,242
1897	.....	5,121,998	.....	5,121,998	.....	13,541,890	5,797,494	.....	7,744,396
1898	.....	6,494,816	.....	6,494,816	.....	18,120,007	8,737,137	.....	9,382,870
1899	.....	6,814,487	.....	6,814,487	.....	17,842,226	8,646,527	.....	9,195,699
1900	.....	6,042,428	.....	6,042,428	.....	17,997,652	10,124,286	.....	7,873,366
1901	.....	4,634,115	.....	4,634,115	.....	20,378,202	12,790,115	.....	7,588,087
1902	.....	3,384,315	.....	3,384,315	.....	18,150,654	11,415,533	.....	6,735,121
1903	.....	4,094,204	.....	4,094,204	.....	18,969,670	11,482,333	.....	7,487,337
1904	.....	3,607,864	.....	3,607,864	.....	19,833,661	11,954,122	.....	7,879,539
1905	.....	3,937,636	.....	3,937,636	.....	22,204,952	12,137,205	.....	10,067,747
1906	.....	6,397,532	1,471,570	4,179,922	1,246,040	11,943,641	5,696,907	.....	6,246,734
1907	.....	10,478,023	4,130,539	5,061,541	1,285,943	13,760,231	6,184,123	.....	7,576,108
1908	.....	14,331,663	8,054,506	4,867,977	1,409,180	14,079,017	6,465,651	.....	7,613,366
1909	.....	9,445,168	5,184,337	3,186,970	1,073,861	15,709,759	8,700,233	.....	7,009,526
1910	.....	7,454,856	3,925,952	2,443,579	1,085,325	15,532,068	8,560,682	.....	6,971,386
1911	.....	20,568,998	14,605,916	4,600,339	1,362,443	27,489,378	18,543,552	.....	8,945,826
1912	.....	27,997,318	22,171,883	4,425,734	1,399,701	27,602,253	17,745,707	.....	9,856,546

UNITED KINGDOM.

Year.	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895	415,565	1,065,470	321	1,902,694,976	561,222,032	683,369,232	245,396,144	360,615,248	77,357,840
1896	562,553	769,592	4	2,040,910,816	546,021,952	717,389,904	297,886,400	346,759,840	72,743,664
1897	613,321	611,504	.....	2,188,145,680	538,529,264	738,623,312	337,163,344	340,126,192	61,333,776
1898	569,066	663,747	450	2,398,860,688	592,200,224	748,976,144	347,291,952	346,771,824	54,912,368
1899	503,504	607,755	.....	2,545,536,560	610,044,512	843,127,152	425,924,016	356,215,552	60,987,584
1900	495,645	382,833	.....	2,544,319,568	591,199,056	909,333,600	462,350,560	367,355,184	79,627,856
1901	495,635	383,594	.....	2,615,097,184	557,370,016	906,414,320	504,979,552	326,492,992	74,941,776
1902	419,488	293,203	.....	2,376,695,888	526,504,608	821,161,488	415,227,344	323,950,144	81,984,000
1903	522,546	354,241	.....	2,397,995,264	491,477,280	815,270,400	465,875,872	277,008,144	72,386,384
1904	549,532	382,240	.....	2,449,582,128	547,397,872	889,960,736	487,203,472	324,220,400	78,536,864
1905	565,139	183,084	150	2,598,525,888	579,901,840	1,001,699,664	564,202,352	354,523,680	82,973,632
1906	561,215	103,359	.....	2,668,776,096	602,284,304	1,042,630,176	618,666,608	372,705,200	51,258,368
1907	472,015	105,601	.....	2,696,346,576	596,172,416	1,051,856,176	642,320,336	376,077,744	33,458,096
1908	383,129	78,900	.....	2,739,579,584	600,023,088	1,049,196,064	628,481,392	377,424,096	43,290,576
1909	321,340	8,131	.....	2,704,258,776	596,611,344	1,136,784,992	687,738,464	399,426,384	49,620,144
1910	219,561	427	.....	2,777,956,608	614,240,592	1,297,953,776	785,735,776	451,561,376	60,656,624
1911	200,398	47,673	.....	2,965,475,819	597,500,960	1,299,331,488	824,442,528	393,351,504	81,537,456
1912	48,912	15,430	.....	2,985,004,072	631,304,576	1,399,021,904	896,651,728	430,770,032	71,600,144

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

UNITED KINGDOM—Continued.

Year.	Meat and meat products—Continued.								
		Pork and pork products.				Unidentified meat and meat products.			
	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895..	314,933,472	857,082,240	32,287,808	200,606,784	624,187,648	47,310,032	26,596,416	.....	20,713,616
1896..	337,983,408	934,395,168	33,534,032	199,262,112	701,599,024	51,142,336	31,291,680	.....	19,850,656
1897..	368,737,376	1,017,751,728	38,933,104	198,403,072	780,415,552	63,033,264	40,860,064	.....	22,173,200
1898..	384,419,280	1,199,356,592	62,451,424	245,428,400	891,476,768	66,108,672	46,477,424	.....	19,631,248
1899..	395,731,504	1,232,361,872	74,924,864	253,828,960	903,608,048	74,316,032	52,053,008	.....	22,263,024
1900..	387,218,944	1,163,303,344	77,884,240	223,843,872	861,575,232	84,463,680	59,437,056	.....	25,026,624
1901..	411,388,656	1,202,093,312	88,649,008	230,877,024	882,567,280	95,200,896	68,350,352	.....	26,850,544
1902..	419,450,640	1,035,008,576	73,402,112	202,554,464	759,052,000	101,075,184	73,362,576	.....	27,712,608
1903..	455,366,912	1,025,543,792	79,054,528	214,469,136	732,020,128	101,814,160	74,285,232	.....	27,528,928
1904..	395,433,808	1,068,849,264	68,374,320	223,177,472	777,297,472	95,338,320	70,673,344	.....	24,664,976
1905..	430,212,160	1,068,610,480	56,630,896	225,378,160	786,601,424	98,003,584	75,056,128	.....	22,947,456
1906..	462,694,288	1,074,406,816	55,117,552	229,529,104	789,760,160	89,044,816	73,064,656	.....	15,980,160
1907..	517,187,216	1,039,959,648	63,541,184	220,004,672	756,323,792	87,343,536	67,748,128	.....	19,595,408
1908..	498,498,224	1,091,024,480	64,088,864	222,598,992	804,336,624	100,860,816	78,155,168	.....	22,705,648
1909..	547,329,104	918,630,160	47,985,728	197,184,960	673,459,472	101,509,520	78,265,712	.....	23,243,808
1910..	622,296,080	755,115,872	53,749,584	162,679,216	538,687,072	102,590,880	79,196,656	.....	23,394,224
1911..	613,156,768	933,608,816	50,728,384	204,149,456	678,730,976	119,378,747	81,322,192	.....	38,056,555
1912..	576,163,616	879,025,168	35,026,768	200,534,544	643,463,856	130,793,384	93,293,200	.....	37,500,184

UNITED STATES.[1]

Year ending June 30—	Live animals.			Meat and meat products.					
						Beef and beef products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.
	Number.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895....	149,781	291,461	.....	.....	.....	.....	.....	.....	.....
1896....	217,826	322,692	.....	882,601	523,341	523,341	.....	523,341	.....
1897....	328,977	405,633	.....	328,080	.....	.....	.....	.....	.....
1898....	291,589	392,314	.....	.....	.....	.....	.....	.....	.....
1899....	199,752	345,911	.....	2,008,027	2,008,027	2,008,027	.....	2,008,027	.....
1900....	181,006	381,792	.....	1,535,412	1,535,412	1,535,412	.....	1,535,412	.....
1901....	146,022	331,488	.....	3,684,720	3,684,720	3,684,720	.....	3,684,720	.....
1902....	96,027	266,953	.....	7,634,293	7,634,293	7,634,293	.....	7,634,293	.....
1903....	66,175	301,623	.....	10,481,807	10,481,807	10,481,807	.....	10,481,807	.....
1904....	16,056	238,094	.....	1,492,407	1,492,407	1,492,407	.....	1,492,407	.....
1905....	27,855	186,942	.....	2,800,540	2,800,540	2,800,540	.....	2,800,540	.....
1906....	29,019	240,747	.....	2,444,811	1,700,177	1,700,177	.....	1,700,177	.....
1907....	32,402	224,798	.....	1,635,346	1,184,287	1,184,287	.....	1,184,287	.....
1908....	92,356	224,765	.....	1,955,615	1,434,845	1,434,845	.....	1,434,845	.....
1909....	139,184	102,663	.....	4,456,127	3,895,254	3,895,254	.....	3,895,254	.....
1910....	195,938	126,152	.....	8,700,009	8,144,485	8,144,485	.....	8,144,485	.....
1911....	182,923	53,455	.....	10,776,662	5,715,348	5,715,348	.....	5,715,348	.....
1912....	318,372	23,588	.....	10,808,633	4,913,090	4,913,090	.....	4,913,090	.....
1913....	421,649	15,428	.....	14,809,547	9,511,134	9,511,134	.....	9,511,134	.....
1914....	868,368	223,719	.....	205,455,726	5,243,553	185,380,736	180,137,183	5,243,553	.....
1915....	538,167	153,317	.....	226,446,067	2,424,009	186,914,768	184,490,759	2,424,009	.....

[1] General imports, practically for consumption.

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TABLE 10.—*Quantity of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries, by years*—Continued.

UNITED STATES—Continued.

Year ending June 30—	Meat and meat products—Continued.								
	Mutton.	Pork and pork products.				Unidentified meat and meat products.			
		Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1895									
1896						359,260			359,260
1897						328,080			328,080
1898									
1899									
1900									
1901									
1902									
1903									
1904									
1905									
1906						744,634			744,634
1907						451,059			451,059
1908						520,770			520,770
1909						560,873			560,873
1910						555,524			555,524
1911						5,061,314			5,061,314
1912						5,895,543			5,895,543
1913						5,298,413			5,298,413
1914	12,710,905	6,633,759	4,624,799		2,008,960	730,326			730,326
1915	15,528,855	23,792,960	16,250,514		7,542,446	209,484			209,484

TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years.*

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.													
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	P.ct	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*
Austria-Hungary, importing from—																		
Germany:																		
1895–1904	1.8	....	9.4	....	10.3	9.4	....	9.4	....	....	....	....	1.8	1.7	21.9	1.5	31.1	41.8
1905–1909	6.1	....	2.3	....	2.0	4.2	18.2	4.0	....	....	....	....	1.3	17.0	20.7	4.6	....	43.2
1910	38.1	....	28.6	....	7.8	9.6	27.7	8.9	....	....	....	....	3.4	42.7	52.9	87.3	....	51.3
1911	14.0	....	13.6	....	3.9	4.3	0.3	6.8	....	....	....	....	.8	1.7	44.3	27.1	....	46.6
1912	12.6	....	1.3	....	7.1	7.8	1.3	11.9	....	....	....	....	1.4	5.6	44.7	31.0	....	46.6
1913	5.4	....	2.5	....	11.0	13.9	25.2	13.1	....	....	....	....	3.4	34.1	43.7	34.8	....	44.6
Servia:																		
1895–1904	89.1	56.5	80.2	....	....	....	....	....	....	....	....	....	....	....	38.8	93.4	....	2.2
1905–1909	62.6	16.3	67.9	....	....	.7	41.2	....	....	....	....	96.5	....	....	53.7	91.4	....	1.3
1910	.1	....	8.4	....	....	....	....	....	....	....	....	44.1	....	....	....	....	....	....

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.														
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
Austria-Hungary importing from—																		
Servia—Contd.																		
1911	51.8	....	84.6	....	....	12.0	30.9	....	....	....	....	99.1	....	....	25.0	63.8	....	19.7
1912	31.3	....	90.9	....	....	37.1	97.5	....	....	....	....	99.3	....	....	22.1	46.0	....	18.8
1913	26.1	....	90.2	....	....	2.5	39.0	....	....	....	....	99.3	....	....	11.3	22.8	....	10.1
United States:																		
1895–1904	....	....	....	53.3	74.6	55.0	.....	55.0	....	....	96.0	.....	95.9	97.3	17.9	.....	47.9	9.1
1905–1909	....	....	....	78.1	92.9	78.4	.....	79.7	....	....	94.5	.....	97.4	79.1	3.2	.3	....	7.1
1910	....	....	....	17.4	24.5	8.8	.....	9.1	....	....	60.4	.....	83.9	.8	....	.....	....	....
1911	....	....	....	47.8	61.2	18.0	.....	29.3	....	....	81.3	.....	94.7	97.5	.2	.....	....	.2
1912	....	....	....	30.6	54.4	11.5	.....	18.6	....	....	46.5	.....	97.1	91.8	.2	.....	....	.2
1913	....	....	....	17.4	36.1	18.9	.....	20.1	....	....	23.2	.....	93.9	57.7	.8	.....	....	.9
Belgium, importing from—																		
Argentina:																		
1895–1904	....	7.9	....	3.5	1.8	....	.....	....	....	....	....	.....	....	....	4.6	16.1	2.8	6.6
1905–1909	....	31.5	....	3.1	2.2	....	.....	....	....	....	....	.....	....	....	4.2	43.2	3.3	5.2
1910	....	23.5	....	5.0	2.8	....	.....	....	....	....	....	.....	....	....	5.7	.....	3.3	14.9
1911	....	42.5	....	5.5	4.6	.5	.....	.5	....	....	....	.....	....	....	6.7	.....	5.9	9.5
1912	....	18.0	....	5.6	4.4	1.9	.....	1.9	....	....	....	.....	....	....	6.6	56.2	5.4	8.0
France:																		
1895–1904	1.9	....	....	9.9	14.7	4.8	.....	4.8	....	....	....	.....	....	....	12.7	1.3	22.5	....
1905–1909	7.6	....	....	9.9	13.2	7.6	.....	7.6	....	....	....	8.5	....	....	12.6	7.5	19.2	....
1910	2.1	....	....	12.0	12.9	6.0	.....	6.0	....	....	....	47.2	....	....	12.9	5.4	14.5	....
1911	4.4	....	....	4.6	5.6	2.6	.....	2.6	....	....	....	.....	....	....	5.5	4.4	7.0	....
1912	13.6	....	....	4.8	5.8	3.0	.....	3.0	....	....	....	.....	....	....	5.6	2.4	7.0	....
Germany:																		
1895–1904	....	43.1	....	....	....	....	.....	....	....	....	....	.....	....	....	1.9	.....	2.6	1.0
1905–1909	....	16.7	....	....	....	....	.....	....	....	....	....	.....	....	....	2.1	.....	2.5	1.4
1910	....	6.9	....	....	....	....	.....	....	....	....	....	.....	....	....	2.7	.....	2.9	2.0
1911	....	.6	....	....	....	....	.....	....	....	....	....	.....	....	....	1.7	.....	1.8	1.6
1912	....	.6	....	....	....	....	.....	....	....	....	....	.....	....	....	2.1	.....	2.2	2.1
Japan:																		
1895–1904	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	3.9	....
1905–1909	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	10.7	....
1910	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	22.4	....
1911	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	27.8	....
1912	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	11.8	....
Netherlands:																		
1895–1904	93.4	42.6	....	15.5	20.5	78.5	.....	78.5	....	....	10.6	.....	10.6	....	11.1	73.5	15.5	3.6
1905–1909	84.3	44.8	....	10.7	11.8	71.9	.....	71.9	....	....	11.5	91.3	11.2	....	6.0	24.7	5.1	7.5
1910	92.0	51.9	....	10.4	8.1	78.1	.....	78.1	....	....	8.1	51.8	4.6	....	7.5	36.2	4.4	18.7
1911	77.5	44.3	....	9.2	7.8	77.0	.....	77.0	....	....	6.5	100.0	4.9	....	6.1	25.2	3.6	14.5
1912	75.7	70.5	....	10.6	9.5	80.3	.....	80.3	....	....	8.8	100.0	8.6	....	7.6	4.9	5.4	16.0
United Kingdom:																		
1895–1904	....	....	....	11.7	13.1	.5	.....	....	....	....	.6	.....	....	....	15.3	7.7	20.5	8.8
1905–1909	....	....	....	13.3	16.3	.7	.....	....	....	....	.1	.....	....	....	17.8	24.3	24.9	4.9
1910	....	....	....	20.3	23.8	.4	.....	....	....	....	.1	.....	....	....	23.2	55.4	28.1	5.0
1911	....	....	....	18.7	21.6	.6	.....	....	....	....	.4	.....	....	....	22.8	62.3	27.6	4.9
1912	....	....	....	22.7	25.4	....	.....	....	....	....	....	.....	....	....	26.9	26.5	31.4	9.6
United States:																		
1895–1904	3.7	....	....	51.6	40.1	15.3	.....	15.3	....	....	87.7	.....	87.7	....	46.3	.3	23.8	76.8
1905–1909	7.8	....	....	50.7	43.1	19.4	.....	19.4	....	....	87.1	.....	87.4	....	43.1	.....	27.3	72.0
1910	0.2	....	....	21.9	18.4	15.3	.....	15.3	....	....	85.2	.....	92.1	....	15.6	.....	9.5	38.5
1911	15.8	....	....	29.5	23.2	18.1	.....	18.1	....	....	92.8	.....	94.5	....	19.2	.....	8.1	59.5
1912	5.9	....	....	27.2	21.5	13.7	.....	13.7	....	....	91.1	.....	91.2	....	19.0	.....	9.6	56.2
Uruguay:																		
1895–1904	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	....	1.0
1905–1909	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	....	6.1
1910	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	....	10.2
1911	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	....	7.8
1912	....	....	....	....	....	....	.....	....	....	....	....	.....	....	....	....	.....	....	6.1

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
Cuba, importing from—																		
Argentina:																		
1900–1904	----	----	----	----	----	16.1	----	----	16.9	----	----	----	----	----	----	----	----	----
1905–1909	----	----	----	----	----	23.8	----	----	25.1	----	----	----	----	----	----	----	----	----
1910	----	----	----	----	----	14.0	----	----	16.0	----	----	----	----	----	----	----	----	----
1911	----	----	----	----	----	27.6	----	----	31.3	----	----	----	----	----	----	----	----	----
1912	----	----	----	----	----	28.6	----	----	31.9	----	----	----	----	----	----	----	----	----
Colombia:																		
1900–1904	16.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1905–1909	20.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1910	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1911	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1912	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mexico:																		
1900–1904	30.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1905–1909	15.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1910	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1911	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1912	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Spain:																		
1900–1904	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	19.0
1905–1909	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	16.8
1910	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	11.8
1911	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	12.4
1912	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	12.0
United States:																		
1900–1904	25.6	....	96.8	63.0	99.2	15.4	100.0	83.5	11.5	100	99.3	100.0	99.7	97.9	60.1	....	....	60.1
1905–1909	29.1	....	99.9	64.4	99.3	5.1	100.0	84.5	4.5	99.9	99.5	99.6	99.8	98.7	76.8	....	....	76.8
1910	81.9	....	100	72.3	99.3	25.8	100.0	94.1	16.2	100	99.4	100.0	99.8	98.2	81.2	....	....	81.2
1911	100	....	100	68.1	99.1	11.1	100.0	91.9	.4	100	99.4	100.0	99.7	98.4	79.3	....	....	79.3
1912	87.9	....	100	67.5	99.2	9.7	100.0	91.2	.3	100	99.3	100.0	99.8	97.7	81.0	....	....	81.0
Uruguay:																		
1900–1904	----	----	----	----	----	67.1	----	----	70.6	----	----	----	----	----	----	----	----	----
1905–1909	----	----	----	----	----	70.4	----	----	74.4	----	----	----	----	----	----	----	----	----
1910	----	----	----	----	----	59.5	----	----	67.8	----	----	----	----	----	----	----	----	----
1911	----	----	----	----	----	59.6	----	----	67.4	----	----	----	----	----	----	----	----	----
1912	----	----	----	----	----	60.8	----	----	67.9	----	----	----	----	----	----	----	----	----
Venezuela:																		
1900–1904	16.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1905–1909	30.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1910	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1911	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1912	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Denmark, importing from—																		
Germany:																		
1895–1904	----	----	----	----	29.4	----	----	33.6	8.7	0.6	----	----	----	----	22.2	----	25.2	13.0
1905–1909	----	----	----	----	25.6	----	----	24.7	12.8	6.1	----	----	26.5	----	16.7	----	----	16.7
1910	----	----	----	----	24.5	----	----	19.5	14.9	11.0	----	----	37.1	----	26.3	----	34.5	25.2
1911	----	----	----	----	22.7	----	----	19.4	10.1	21.3	----	----	30.9	----	29.8	----	59.8	26.5
1912	----	----	----	----	22.4	----	----	17.0	16.0	18.9	----	----	36.9	----	34.3	----	65.0	31.4
Iceland:																		
1895–1904	----	----	----	----	----	----	----	----	----	85.6	----	----	----	----	----	----	----	----
1905–1909	----	----	----	----	----	----	----	----	----	82.4	----	----	----	----	----	----	----	----
1910	----	----	----	----	----	----	----	----	----	73.5	----	----	----	----	----	----	----	----
1911	----	----	----	----	----	----	----	----	----	72.7	----	----	----	----	----	----	----	----
1912	----	----	----	----	----	----	----	----	----	69.4	----	----	----	----	----	----	----	----
Netherlands:																		
1895–1904	----	----	----	----	4.7	----	----	9.1	----	----	----	----	----	----	----	----	----	----
1905–1909	----	----	----	----	9.0	----	----	16.8	----	----	----	----	----	----	----	----	----	----
1910	----	----	----	----	14.4	----	----	19.6	----	----	----	----	----	----	----	----	----	----
1911	----	----	----	----	16.1	----	----	21.7	----	----	----	----	----	----	----	----	----	----
1912	----	----	----	----	25.9	----	----	34.3	----	----	----	----	----	----	----	----	----	----

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.														
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Denmark, importing from—	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
Sweden:																		
1895–1904	94.1	99.2	98.0	....	....	....	88.6	1.1	....	....	....	94.3	....	49.4	....	....	....	22.8
1905–1909	89.2	97.0	91.3	....	....	....	80.7	4.3	....	....	....	96.8	....	22.3	....	....	....	20.4
1910	98.0	89.3	100.0	....	....	....	76.0	2.7	....	....	....	97.5	....	86.3	....	....	....	22.9
1911	97.9	99.5	99.0	....	....	....	99.5	3.5	....	....	....	99.7	....	41.9	....	....	....	34.7
1912	99.8	84.3	100.0	....	....	....	94.4	5.2	....	....	....	100.0	....	8.2	....	....	....	42.8
United Kingdom:																		
1895–1904	....	....	....	....	....	....	....	8.4	....	....	....	....	....	....	....	....	....	8.2
1905–1909	....	....	....	....	....	....	....	8.7	....	....	....	....	....	....	....	....	....	7.1
1910	....	....	....	....	....	....	....	18.3	....	....	....	....	....	....	....	....	....	14.2
1911	....	....	....	....	....	....	....	6.6	....	....	....	....	....	....	....	....	....	10.6
1912	....	....	....	....	....	....	....	8.7	....	....	....	....	....	....	....	....	....	6.7
United States:																		
1895–1904	....	....	....	....	48.7	39.3	....	36.3	80.7	....	38.9	....	....	39.5	48.8	....	61.4	10.4
1905–1909	....	....	....	....	54.7	46.4	....	40.8	82.0	....	69.4	....	67.8	74.9	49.7	....	....	49.7
1910	....	....	....	....	35.4	28.3	22.9	26.9	79.1	....	53.7	....	58.2	5.6	19.0	....	11.8	20.0
1911	....	....	....	....	45.9	39.1	....	39.8	73.4	....	54.5	....	65.4	28.9	17.3	....	8.1	18.1
1912	....	....	....	....	32.9	25.1	....	24.8	70.0	....	43.6	....	58.5	39.7	12.7	....	5.3	13.4
France, importing from—																		
Algeria:																		
1895–1904	49.6	80.9	12.4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	46.9	93.7	1.8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1910	54.3	96.6	39.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	67.7	97.6	9.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1912	26.6	95.4	3.4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Argentina:																		
1895–1904	....	....	....	....	15.0	27.5	....	27.5	....	79.7	....	....	....	....	....	4.1	....	....
1905–1909	....	....	....	....	2.2	3.8	....	3.8	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	9.0	14.0	....	14.0	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	12.7	26.7	....	26.7	....	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	13.5	26.9	....	26.9	....	77.5	....	....	....	....	....	.6	....	....
Belgium:																		
1895–1904	....	....	....	11.4	4.4	4.8	....	4.8	....	10.3	16.7	84.0	1.3	8.6	12.5	14.8	11.6	12.4
1905–1909	....	....	....	8.7	6.1	4.9	....	4.9	....	56.0	9.9	92.1	1.6	13.6	12.2	5.6	12.8	13.1
1910	....	....	....	10.9	7.8	8.6	....	8.6	....	75.4	16.0	39.5	4.6	18.0	9.8	7.6	6.6	14.1
1911	....	....	....	9.6	7.4	10.0	....	10.0	....	62.5	8.3	14.4	3.1	11.6	10.6	4.2	9.5	15.4
1912	....	....	....	8.7	6.6	9.0	....	9.0	....	8.3	8.8	23.4	2.3	10.5	8.4	4.6	7.7	10.7
Germany:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	14.8	....	....	....	9.5
1905–1909	....	....	....	....	....	....	....	....	....	....	....	....	....	17.5	....	....	....	12.3
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	27.4	....	....	....	13.0
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	17.2	....	....	....	9.8
1912	....	....	....	....	....	....	....	....	....	....	....	....	....	19.0	....	....	....	9.8
Madagascar:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3.1
1905–1909	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.6
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	16.1
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	18.7
1912	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	27.7
Netherlands:																		
1895–1904	8.1	....	26.4	....	....	....	....	....	....	....	14.8	....	....	....	8.2	12.1	....	....
1905–1909	24.1	....	92.4	....	....	....	....	....	....	....	6.3	....	....	....	25.6	10.4	....	....
1910	12.1	....	28.5	....	....	....	....	....	....	....	58.0	....	....	....	30.1	6.7	....	....
1911	.4	....	86.0	....	....	....	....	....	....	....	81.4	....	....	....	16.9	9.1	....	....
1912	17.9	....	92.3	....	....	....	....	....	....	....	35.7	....	....	....	18.4	6.7	....	....

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries fromwhich consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.														
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
France, importing from—																		
New Caledonia:	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8.0
1905–1909	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.2
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	10.7
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	11.2
1912	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3.3
United Kingdom:																		
1895–1904	....	....	....	....	....	10.5	....	10.5	....	....	....	....	....	41.5	21.7	1.4	45.5	5.6
1905–1909	....	....	....	....	....	8.6	....	8.6	....	....	....	....	....	39.3	32.5	8.5	54.2	7.6
1910	....	....	....	....	....	17.4	....	17.4	....	....	....	....	....	42.3	88.3	29.9	69.0	7.7
1911	....	....	....	....	....	10.6	....	10.6	....	....	....	....	....	29.3	44.2	65.2	66.4	5.1
1912	....	....	....	....	....	10.0	....	10.0	....	....	....	....	....	29.8	43.1	63.8	71.0	6.9
United States:																		
1895–1904	....	....	....	47.1	59.6	45.8	....	45.8	....	....	59.0	....	90.2	32.1	26.4	....	26.0	39.0
1905–1909	....	....	....	48.2	62.2	72.0	....	72.0	....	....	42.4	....	87.2	7.2	22.9	....	16.5	39.6
1910	....	....	....	9.4	12.8	14.8	....	14.8	....	....	3.7	....	20.7	.5	7.4	....	7.0	10.7
1911	....	....	....	33.6	46.4	34.9	....	34.9	....	....	45.7	....	80.3	29.0	7.5	....	5.8	13.8
1912	....	....	....	33.2	44.9	30.3	....	30.3	....	....	49.0	....	85.9	25.4	9.4	....	5.8	17.0
Germany, importing from—																		
Argentina:																		
1895–1904	....	....	....	.6	.5	1.2	....	1.8	....	....	....	....	....	....	1.8	....	....	1.9
1905–1909	....	....	....	2.3	2.1	4.7	....	6.5	....	....	....	....	....	....	6.1	....	....	6.1
1910	....	....	....	6.3	7.0	10.8	....	14.0	....	....	....	....	....	....	8.7	....	....	8.8
1911	....	....	....	5.3	5.7	11.2	....	14.9	....	....	....	....	....	....	7.7	....	....	7.8
1912	....	....	....	5.8	6.9	11.3	....	17.9	....	....	....	....	....	....	10.6	....	....	10.6
Australia:																		
1895–1904	....	....	....	....	....	....	....	5.3	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	....	5.0	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	8.3	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	8.6	....	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	....	10.4	....	....	....	....	....	....	....	....	....	....
Austria-Hungary:																		
1895–1904	64.0	15.3	....	....	....	....	....	....	....	65.7	....	....	....	4.2	....	....	....	....
1905–1909	47.4	77.8	....	....	....	....	....	....	....	26.5	....	....	....	5.6	....	....	....	....
1910	37.0	90.2	....	....	....	....	....	....	....	16.3	....	....	....	5.3	....	....	....	....
1911	10.4	27.9	....	....	....	....	....	....	....	13.7	....	....	....	4.6	....	....	....	....
1912	26.3	72.9	....	....	....	....	....	....	....	13.8	....	....	....	15.3	....	....	....	....
Denmark:																		
1895–1904	25.3	....	....	....	....	....	36.6	....	14.1	11.0	....	(1)	....	9.5	....	....	....	11.9
1905–1909	45.4	....	....	....	....	....	48.4	....	7.4	50.2	....	3.5	....	33.0	....	....	....	14.4
1910	57.5	....	....	....	....	....	58.9	....	14.3	54.9	....	3.2	....	60.0	....	....	....	12.1
1911	80.9	....	....	....	....	....	54.1	....	4.4	55.4	....	3.2	....	65.7	....	....	....	12.5
1912	58.6	....	....	....	....	....	58.9	....	4.2	41.6	....	16.7	....	48.3	....	....	....	14.4
France:																		
1895–1904	....	....	....	....	....	....	....	5.7	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	....	9.6	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	14.3	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	4.9	....	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	....	6.8	....	....	....	....	....	....	....	....	....	....
Netherlands:																		
1895–1904	....	....	....	....	....	....	32.5	....	....	14.0	....	60.2	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	40.2	....	....	14.0	....	69.2	....	....	....	....	....	....
1910	....	....	....	....	....	....	30.0	....	....	22.5	....	48.6	....	....	....	....	....	....
1911	....	....	....	....	....	....	23.8	....	....	25.6	....	8.0	....	....	....	....	....	....
1912	....	....	....	....	....	....	22.0	....	....	35.1	....	50.2	....	....	....	....	....	....

[1] Less than 0.05 per cent.

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Germany, importing from—																		
Russia:	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct.	P.ct
1895–1904	....	....	71.7	....	....	....	....	....	9.1	....	....	14.9	....	....	....	....	.....	11.2
1905–1909	....	....	96.8	....	....	....	....	....	1.8	....	....	16.1	....	....	....	....	.....	10.5
1910	....	....	97.1	....	....	....	....	....	7.8	....	....	35.4	....	....	....	....	.....	12.4
1911	....	....	98.9	....	....	....	....	....	20.2	....	....	71.1	....	....	....	....	.....	10.1
1912	....	....	98.7	....	....	....	....	....	38.9	....	....	24.8	....	....	....	....	.....	9.6
Sweden:																		
1895–1904	....	....	....	....	....	....	[1].1	....	....	....	....	....	....	....	....	....	.....	....
1905–1909	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....
1910	....	....	....	....	....	....	4.8	....	....	....	....	....	....	....	....	....	.....	....
1911	....	....	....	....	....	....	17.9	....	....	....	....	....	....	....	....	....	.....	....
1912	....	....	....	....	....	....	11.4	....	....	....	....	....	....	....	....	....	.....	....
United Kingdom:																		
1895–1904	....	23.0	....	....	....	....	....	16.2	....	....	....	....	....	....	....	....	.....	11.8
1905–1909	....	7.0	....	....	....	....	....	12.8	....	....	....	....	....	....	....	....	.....	13.1
1910	....	4.1	....	....	....	....	....	14.4	....	....	....	....	....	....	....	....	.....	13.2
1911	....	30.3	....	....	....	....	....	11.9	....	....	....	....	....	....	....	....	.....	12.6
1912	....	17.3	....	....	....	....	....	6.8	....	....	....	....	....	....	....	....	.....	11.8
United States:																		
1895–1904	....	....	....	85.7	....	....	....	59.3	67.6	....	....	....	96.7	75.4	43.8	....	94.8	40.2
1905–1909	....	....	....	84.8	....	....	....	59.8	79.3	....	....	....	97.0	47.7	34.5	....	[2]24.5	34.6
1910	....	....	....	66.3	....	....	....	41.8	67.4	....	....	....	90.9	6.1	28.6	....	.....	28.8
1911	....	....	....	80.4	....	....	....	56.3	65.7	....	....	....	95.4	6.7	31.9	....	.....	32.0
1912	....	....	....	78.6	....	....	....	53.0	42.6	....	....	....	94.6	19.4	25.6	....	.....	25.7
Italy, importing from—																		
Argentina:																		
1895–1904	1.5	....	....	....	....	....	....	....	....	....	....	....	....	....	36.5	.4	38.6	17.0
1905–1909	1.4	.4	....	....	....	....	....	....	....	....	....	....	....	....	29.1	46.0	29.1	23.7
1910	1.2	2.4	....	....	....	....	....	....	....	....	....	....	....	....	29.5	93.6	26.2	30.7
1911	10.5	17.5	....	....	....	....	....	....	....	....	....	....	....	....	31.4	72.8	20.2	28.0
1912	7.7	42.1	....	....	....	....	....	....	....	....	....	....	....	....	41.7	88.2	18.2	21.3
Austria-Hungary:																		
1895–1904	42.1	59.5	28.8	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	10.5
1905–1909	54.9	45.9	45.9	....	....	40.8	....	40.8	....	....	....	....	....	....	....	....	.....	7.5
1910	7.6	2.6	3.1	....	....	9.4	....	9.4	....	....	....	....	....	....	....	....	.....	7.0
1911	2.0	9.2	16.5	....	....	7.0	....	7.0	....	....	....	....	....	....	....	....	.....	5.7
1912	6.9	16.8	50.1	....	....	14.1	....	14.1	....	....	....	....	....	....	....	....	.....	5.9
France:																		
1895–1904	1.9	4.9	16.8	....	....	....	....	....	....	....	....	....	....	....	....	....	12.0	8.8
1905–1909	7.2	3.0	33.7	....	....	34.8	....	34.8	....	....	....	....	....	....	....	....	6.8	10.5
1910	48.8	2.6	67.3	....	....	77.7	....	77.7	....	....	....	....	....	....	....	....	5.9	8.4
1911	61.2	19.9	3.0	....	....	55.3	....	55.3	....	....	....	....	....	....	....	....	4.4	10.3
1912	51.7	2.6	....	....	....	14.6	....	14.6	....	....	....	....	....	....	....	....	6.5	7.8
United Kingdom:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	25.9	....
1905–1909	....	....	....	....	....	10.5	....	10.5	....	....	....	....	....	....	....	....	26.5	....
1910	....	....	....	....	....	10.2	....	10.2	....	....	....	....	....	....	....	....	26.1	....
1911	....	....	....	....	....	9.1	....	9.1	....	....	....	....	....	....	....	....	22.8	....
1912	....	....	....	....	....	12.1	....	12.1	....	....	....	....	....	....	....	....	21.3	....
United States:																		
1895–1904	....	....	....	25.2	17.9	....	....	....	....	....	93.1	....	86.6	99.7	13.8	5.6	11.5	35.9
1905–1909	....	....	....	35.6	31.7	....	....	....	....	....	89.3	....	94.1	87.1	25.1	.5	27.4	8.7
1910	....	....	....	28.7	30.6	....	....	....	....	....	84.6	....	92.6	76.5	24.4	....	27.9	6.6
1911	....	....	....	38.2	41.5	....	....	....	....	....	96.7	....	99.5	94.6	27.9	.2	35.7	27.6
1912	....	....	....	28.7	37.1	....	....	....	....	....	91.8	....	96.3	90.0	20.7	.1	33.6	8.3

[1] Only 4 years given.

[2] Only 1 year given.

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Netherlands, importing from—																		
Argentina:	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
1895–1904	....	....	....	....	.2	.3	.....	.3	....	....	....	....	....	....	....	.....	.....	....
1905–1909	....	....	....	....	1.8	2.5	.....	2.5	....	....	....	....	....	....	....	.....	.....	....
1910	....	....	....	....	5.6	6.4	.....	6.4	....	....	....	....	....	....	....	.....	.....	....
1911	....	....	....	....	5.7	7.7	4.2	7.7	....	....	....	....	....	....	....	.....	.....	....
1912	....	....	....	....	8.5	11.6	10.3	11.7	....	....	....	....	....	....	....	.....	.....	....
Belgium:																		
1895–1904	97.7	....	....	....	6.7	8.3	.....	8.3	....	....	2.3	.....	2.3	....	....	.....	.....	6.4
1905–1909	99.6	....	....	....	7.3	9.5	60.7	9.4	....	....	2.3	4.0	1.8	6.4	....	.....	.....	1.3
1910	99.7	....	....	....	10.3	11.0	82.1	11.0	....	....	5.9	9.1	5.6	9.9	....	.....	.....	3.3
1911	98.9	....	....	....	7.4	9.0	58.2	8.9	....	....	2.9	10.2	2.8	5.3	....	.....	.....	2.9
1912	100	....	....	....	9.1	11.5	5.0	11.6	....	....	2.6	.3	2.4	4.9	....	.....	.....	5.1
Germany:																		
1895–1904	....	99.6	....	....	3.3	4.2	.....	4.2	....	....	2.3	.....	2.3	....	....	.....	.....	5.1
1905–1909	....	98.5	....	....	4.9	6.3	39.2	6.3	....	....	1.4	95.9	1.1	3.0	....	.....	.....	7.0
1910	....	97.8	....	....	8.5	9.1	17.8	9.1	....	....	4.8	72.6	4.7	5.7	....	.....	.....	7.1
1911	....	1.1	....	....	5.0	6.4	14.2	6.4	....	....	1.3	89.1	1.1	4.8	....	.....	.....	2.1
1912	....	32.0	....	....	6.2	8.1	54.0	7.7	....	....	4.4	97.7	2.3	1.9	....	.....	.....	12.9
United Kingdom:																		
1895–1904	....	....	....	....	23.9	30.0	.....	30.0	....	....	.....	.....	6.9	....	26.8	.2	....	26.8
1905–1909	....	....	....	....	21.1	26.0	(1)	26.0	....	....	.....	.....	3.5	11.0	24.5	.....	....	24.5
1910	....	....	....	....	26.2	29.9	.1	29.9	....	....	.....	.....	.9	6.2	29.7	99.8	....	28.5
1911	....	....	....	....	18.3	24.2	23.6	24.2	....	....	.....	.....	.9	7.3	24.5	100.0	....	21.4
1912	....	....	....	....	16.9	22.6	30.7	22.5	....	....	.....	.....	1.7	5.3	31.2	100.0	....	26.5
United States:																		
1895–1904	....	....	....	....	62.1	52.3	.....	52.3	....	....	89.2	.....	89.2	....	59.3	.....	....	59.3
1905–1909	....	....	....	....	61.7	48.6	.....	48.6	....	....	92.1	.....	93.5	79.4	59.0	.....	....	59.0
1910	....	....	....	....	34.9	27.2	.....	27.2	....	....	86.4	.....	87.3	74.0	50.5	.....	....	51.3
1911	....	....	....	....	56.5	44.7	.....	44.7	....	....	90.7	.....	91.3	81.6	54.9	.....	....	57.1
1912	....	....	....	....	48.7	32.0	.....	32.3	....	....	89.7	.....	92.3	86.5	42.3	.....	....	45.1
Norway, importing from—																		
Denmark:																		
1895–1904	....	....	....	17.1	13 3	15.0	.....	15.1	.6	....	10.1	.....	9.2	10.5	31.4	.....	....	31.4
1905–1909	....	....	....	33.0	29.0	27.7	.....	27.7	19.7	....	30.1	.....	32.9	27.9	46.1	.....	....	46.1
1910	....	....	....	17.7	9.3	10.1	.....	10.1	....	....	8.1	.....	5.5	11.6	37.3	.....	....	37.3
1911	....	....	....	11.1	8.5	9.4	.....	9.4	....	....	5.5	.....	4.3	6.3	18.9	.....	....	18.9
1912	....	....	....	14.6	9.4	9.3	.....	9.3	....	....	8.0	.....	9.7	6.5	31.5	.....	....	31.5
Germany:																		
1895–1904	....	....	....	....	15.8	15.5	.....	15.6	....	....	17.5	.....	16.4	18.1	....	.....	....	....
1905–1909	....	....	....	....	15.0	15.7	.....	15.8	....	....	18.6	.....	12.7	23.4	....	.....	....	....
1910	....	....	....	....	9.9	10.6	.....	10.6	....	....	4.4	.....	6.8	1.1	....	.....	....	....
1911	....	....	....	....	8.3	9.5	.....	9.5	....	....	1.7	.....	3.0	.8	....	.....	....	....
1912	....	....	....	....	13.4	15.2	.....	15.2	....	....	2.7	.....	4.8	.9	....	.....	....	....
Sweden:																		
1895–1904	99.7	84.0	....	....	....	....	.....	....	....	....	....	.....	....	....	35.2	.....	....	35.2
1905–1909	87.7	96.4	....	....	....	....	.....	....	....	....	....	.....	....	....	13.3	.....	....	13.3
1910	98.2	92.6	....	....	....	....	.....	....	....	....	....	.....	....	....	24.5	.....	....	24.5
1911	99.9	99.8	....	....	....	....	.....	....	....	....	....	.....	....	....	40.5	.....	....	40.5
1912	99.9	99.9	....	....	....	....	.....	....	....	....	....	.....	....	....	33.6	.....	....	33.6
United Kingdom:																		
1895–1904	....	....	....	24.5	19.7	19.1	.....	19.3	4.2	....	36.2	.....	20.6	43.5	11.6	.....	....	11.6
1905–1909	....	....	....	13.7	14.2	15.2	.....	15.2	....	....	11.6	.....	11.2	11.9	13.8	.....	....	13.8
1910	....	....	....	10.2	9.1	10.7	.....	10.7	....	....	1.5	.....	1.7	1.2	15.0	.....	....	15.0
1911	....	....	....	10.2	11.3	12.1	.....	12.1	....	....	4.1	.....	7.9	1.5	12.4	.....	....	12.4
1912	....	....	....	8.8	10.9	12.9	.....	12.9	....	....	.8	.....	1.3	.4	7.8	.....	....	7.8

[1] Less than 0.05 per cent.

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Norway, importing from—																		
United States:	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
1895–1904	----	----	----	27.2	41.8	37.5	----	37.9	6.9	----	29.2	----	50.6	19.2	11.5	----	----	11.5
1905–1909	----	----	----	27.5	30.8	30.2	----	30.3	----	----	33.5	----	32.5	34.3	14.7	----	----	14.7
1910	----	----	----	44.9	56.6	51.0	----	51.1	----	----	81.8	----	81.2	82.5	10.0	----	----	10.0
1911	----	----	----	49.1	56.6	51.9	----	52.0	----	----	83.1	----	77.7	87.0	14.3	----	----	14.3
1912	----	----	----	42.2	48.2	41.3	----	41.4	----	----	85.5	----	80.4	90.1	4.5	----	----	4.5
Russia, importing from—																		
Afghanistan:																		
1895–1904	----	30.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1905–1909	----	16.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1910	----	1.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1911	----	1.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1912	----	2.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
China:																		
1895–1904	25.9	39.7	15.8	1.4	.4	1.6	----	1.6	----	----	----	----	----	----	1.4	73.1	.4	7.3
1905–1909	49.5	59.3	33.1	11.0	1.6	----	----	----	----	----	----	----	----	----	11.1	82.0	1.6	36.7
1910	42.4	69.0	70.6	17.4	4.0	----	----	----	----	----	----	----	----	----	17.9	96.0	4.1	9.6
1911	46.5	80.4	58.9	19.5	4.5	----	----	----	----	----	----	----	----	----	20.0	94.3	4.7	6.3
1912	65.5	69.9	73.6	26.0	5.9	----	----	----	----	----	----	----	----	----	26.4	96.7	6.0	3.8
Finland:																		
1895–1904	17.3	1.0	72.2	----	----	----	----	----	----	----	----	----	----	----	----	18.5	----	3.9
1905–1909	20.2	0.2	17.4	----	----	----	----	----	----	----	----	----	----	----	----	5.6	----	.7
1910	11.5	0.4	29.1	----	----	----	----	----	----	----	----	----	----	----	----	3.5	----	1.7
1911	12.3	0.5	35.2	----	----	----	----	----	----	----	----	----	----	----	----	3.4	----	2.7
1912	6.3	0.5	25.4	----	----	----	----	----	----	----	----	----	----	----	----	2.7	----	.8
Germany:																		
1895–1904	----	----	----	14.7	14.4	47.1	----	47.1	----	----	----	----	----	----	14.3	----	13.9	42.9
1905–1909	----	----	----	16.5	18.2	74.4	----	74.4	----	----	----	----	----	----	16.1	----	17.6	20.2
1910	----	----	----	21.0	24.4	66.5	----	66.5	----	----	----	----	----	----	19.7	----	23.1	29.6
1911	----	----	----	18.0	21.0	58.0	----	58.0	----	----	----	----	----	----	16.9	----	19.7	40.3
1912	----	----	----	21.0	25.2	64.1	----	64.1	----	----	----	----	----	----	20.3	----	24.4	58.7
Persia:																		
1895–1904	11.1	26.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1905–1909	6.4	22.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1910	11.4	27.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1911	8.9	17.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1912	11.1	25.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Roumania:																		
1895–1904	20.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1905–1909	7.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1910	14.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1911	12.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1912	10.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
United Kingdom:																		
1895–1904	----	----	----	70.1	72.1	19.4	----	19.4	----	----	----	----	----	----	70.7	----	72.8	5.2
1905–1909	----	----	----	61.8	71.9	10.7	----	10.7	----	----	----	----	----	----	62.2	----	72.5	4.5
1910	----	----	----	53.3	63.1	5.8	----	5.8	----	----	----	----	----	----	54.5	----	64.9	17.6
1911	----	----	----	53.9	66.3	3.6	----	3.6	----	----	----	----	----	----	55.3	----	68.5	8.9
1912	----	----	----	44.0	59.3	----	----	----	----	----	----	----	----	----	44.6	----	60.5	9.8
United States:																		
1895–1904	----	----	----	6.0	5.7	3.1	----	3.1	----	----	----	----	----	----	6.0	----	5.8	21.7
1905–1909	----	----	----	3.3	2.7	3.0	----	3.0	----	----	----	----	----	----	3.3	----	2.7	19.9
1910	----	----	----	.7	.3	.6	----	.6	----	----	----	----	----	----	.7	----	.3	29.5
1911	----	----	----	1.1	.4	----	----	----	----	----	----	----	----	----	1.1	----	.4	29.9
1912	----	----	----	1.6	1.0	----	----	----	----	----	----	----	----	----	1.6	----	1.0	19.8

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TABLE 11.—*Percentage of imports [for consumption (f)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.														
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Spain, importing from—																		
Argentina:	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*
1895–1904	....	....	....	32.7	35.5	79.3	....	....	79.3	....	1.4	....	....	1.4	34.1	....	35.5	16.6
1905–1909	....	....	....	27.3	28.3	98.0	....	....	98.0	....	2.5	....	....	2.5	26.9	2.5	28.3	14.1
1910	....	....	....	20.4	15.1	99.4	....	....	99.4	....	....	....	....	....	16.4	11.4	15.1	24.5
1911	....	....	....	27.1	24.6	91.2	....	....	91.2	....	....	....	....	....	24.3	2.4	24.6	22.1
1912	....	....	....	16.1	14.5	43.4	....	....	43.4	....	....	....	....	....	15.6	32.2	14.5	23.1
France:																		
1895–1904	7.2	....	....	18.8	19.8	16.1	....	....	16.1	....	3.3	....	....	3.3	20.0	....	19.8	22.2
1905–1909	12.1	....	....	19.4	22.5	(1)	....	....	(1)	....	1.2	....	....	1.2	21.1	81.9	22.5	8.0
1910	13.6	....	....	26.3	31.2	(1)	....	....	(1)	....	8.0	....	....	8.0	28.0	79.2	31.2	6.7
1911	3.0	....	....	26.2	30.0	....	....	....	....	....	6.8	....	....	6.8	27.7	37.9	30.0	8.1
1912	9.7	....	....	21.7	24.3	(1)	....	....	(1)	....	4.4	....	....	4.4	22.7	60.2	24.3	10.1
Portugal:																		
1895–1904	49.6	99.5	98.1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	53.4	98.5	89.1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1910	27.2	90.6	83.8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	54.0	99.5	99.5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1912	47.7	100	99.4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
United Kingdom:																		
1895–1904	....	....	....	12.5	12.1	.8	....	....	....	....	27.5	....	....	27.5	11.7	....	12.1	6.1
1905–1909	....	....	....	12.9	13.6	.1	....	....	....	....	17.8	....	....	17.8	13.0	....	13.6	6.5
1910	....	....	....	9.5	10.9	(1)	....	....	....	....	38.1	....	....	38.1	9.7	....	10.9	1.5
1911	....	....	....	12.4	14.1	....	....	....	....	....	33.2	....	....	33.2	12.7	....	14.1	1.2
1912	....	....	....	17.1	19.7	(1)	....	....	....	....	26.9	....	....	26.9	17.4	....	19.7	.6
United States:																		
1895–1904	....	....	....	6.5	.1	.3	....	....	.3	....	63.8	....	....	63.8	2.6	....	.1	32.9
1905–1909	....	....	....	10.3	1.0	1.7	....	....	1.7	....	75.8	....	....	75.8	6.3	....	1.0	57.0
1910	....	....	....	7.7	1.0	(1)	....	....	(1)	....	47.2	....	....	47.2	7.6	....	1.0	50.5
1911	....	....	....	6.5	.8	.1	....	....	.1	....	56.4	....	....	56.4	6.2	....	.8	51.0
1912	....	....	....	7.2	.2	....	....	....	....	....	66.9	....	....	66.9	6.3	....	.2	51.7
Uruguay:																		
1895–1904	....	....	....	16.1	18.9	3.1	....	....	3.1	....	....	....	....	....	17.5	....	18.9	1.3
1905–1909	....	....	....	20.2	24.3	.1	....	....	.1	....	....	....	....	....	22.0	....	24.3	.8
1910	....	....	....	19.9	24.3	.5	....	....	.5	....	....	....	....	....	21.2	....	24.3	.8
1911	....	....	....	13.4	15.3	8.7	....	....	8.7	....	....	....	....	....	13.8	....	15.3	1.6
1912	....	....	....	26.2	28.9	56.5	....	....	56.5	....	....	....	....	....	25.8	....	28.9	2.4
Sweden, importing from—																		
Denmark:																		
1895–1904	....	....	....	15.2	20.4	18.2	....	18.2	....	....	11.9	....	31.9	8.8	20.3	....	....	20.4
1905–1909	....	....	....	10.5	10.0	10.8	7.3	11.0	16.4	50.0	4.7	....	8.2	3.1	19.4	17.1	.8	23.9
1910	....	....	....	11.5	6.4	7.3	.6	7.9	6.2	45.3	.5	....	.8	.3	28.2	24.9	....	10.0
1911	....	....	....	10.9	9.6	10.6	....	11.7	....	32.7	.6	....	2.0	....	27.8	....	....	36.6
Finland:																		
1895–1904	81.5	....	78.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	83.5	....	39.8	....	....	....	77.0	....	....	27.2	....	....	....	....	....	72.0	....	....
1910	88.5	....	18.7	....	....	....	94.3	....	....	16.3	....	....	....	....	....	62.6	....	....
1911	94.5	....	....	....	....	....	96.8	....	....	11.2	....	....	....	....	....	57.9	....	....
France:																		
1895–1904	....	....	....	....	....	....	....	.3	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	....	28.2	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	20.1	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	16.1	....	....	....	....	....	....	....	....	....	....
Germany:																		
1895–1904	....	....	....	....	16.5	....	....	11.2	....	....	40.2	....	44.1	39.5	....	....	....	13.4
1905–1909	....	....	....	....	4.5	....	....	4.4	....	1.5	6.0	....	4.3	7.0	....	....	6.2	9.0
1910	....	....	....	....	6.2	....	....	7.7	....	14.0	.2	....	....	.3	....	....	....	13.2
1911	....	....	....	....	4.8	....	....	5.8	....	39.6	.5	....	1.5	....	....	....	....	13.5

[1] Less than 0.05 per cent.

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.														
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.]	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Sweden, importing from—																		
Netherlands:	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
1895-1904	....	....	....	....	....	....	....	7.7	....	....	....	....	....	....	....	....	....	....
1905-1909	....	....	....	....	....	....	....	13.1	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	21.7	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	20.4	....	....	....	....	....	....	....	....	....	....
Norway:																		
1895-1904	....	61.6	12.1	....	....	....	....	....	....	....	....	....	....	24.5	....	....	....	....
1905-1909	....	82.7	47.4	....	....	....	....	....	....	....	....	....	....	18.9	....	....	20.5	....
1910	....	76.1	78.2	....	....	....	....	....	....	....	....	....	....	8.8	....	....	34.4	....
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	5.2	....	....	59.0	....
United Kingdom:																		
1895-1904	....	....	....	....	....	....	....	25.4	....	....	....	....	....	....	....	....	....	....
1905-1909	....	....	....	....	....	....	....	8.7	....	8.8	....	....	....	....	....	....	48.0	....
1910	....	....	....	....	....	....	....	10.4	....	17.0	....	....	....	....	....	....	65.6	....
1911	....	....	....	....	....	....	....	6.1	....	12.6	....	....	....	....	....	....	40.8	....
United States:																		
1895-1904	....	....	....	....	[2]0.2	[1].2	....	[1].2	....	....	0.9	....	[1]0.6	.9	[2]0.1	....	....	0.1
1905-1909	....	....	....	....	33.6	17.9	....	18.4	56.3	....	73.0	....	80.6	69.5	20.0	....	22.3	19.9
1910	....	....	....	....	24.2	17.0	....	16.5	71.6	....	86.5	....	82.2	89.6	26.5	....	....	38.4
1911	....	....	....	....	31.3	21.9	....	22.9	55.3	....	89.5	....	80.6	93.5	31.8	....	....	41.8
Switzerland, importing from—																		
Argentina:																		
1895-1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905-1909	....	.1	....	....	....	....	....	....	....	....	....	....	....	....	....	[4]	....	....
1910	0.3	.3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	17.3	10.1	....	....	....	3.0	....	6.7	....	....	....	....	....	....	....	11.3	....	....
1912	11.8	8.0	....	....	....	5.1	....	12.2	....	....	....	....	....	....	....	24.2	....	....
Australia:																		
1895-1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905-1909	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.8	....	....
1912	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6.2	....	....
Austria-Hungary:																		
1895-1904	9.1	17.7	....	....	....	....	....	2.0	....	....	....	....	....	....	....	13.6	....	....
1905-1909	11.0	17.3	....	....	....	....	....	17.3	....	....	....	....	....	28.8	....	12.8	....	....
1910	8.0	14.2	....	....	....	....	....	7.8	....	....	....	....	....	32.6	....	8.5	....	....
1911	.6	7.8	....	....	....	....	....	1.5	....	....	....	....	....	32.4	....	.6	....	....
1912	.3	6.4	....	....	....	....	....	2.3	....	....	....	....	....	34.5	....	.6	....	....
Denmark:																		
1895-1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905-1909	....	....	....	....	....	....	2.4	....	....	....	....	15.8	....	....	....	7.0	....	....
1910	....	....	....	....	....	....	14.7	....	....	....	....	8.2	....	....	....	26.5	....	....
1911	....	....	....	....	....	....	16.2	....	....	....	....	13.5	....	....	....	22.4	....	....
1912	....	....	....	....	....	....	15.9	....	....	....	....	34.4	....	....	....	16.4	....	....
France:																		
1895-1904	31.6	6.7	26.8	....	37.0	....	....	66.1	....	....	....	....	....	....	....	58.5	....	....
1905-1909	50.1	21.0	27.6	....	22.8	....	72.8	39.3	....	....	....	18.0	....	....	....	60.1	....	....
1910	74.2	28.1	58.5	....	41.2	....	43.1	44.7	....	....	....	11.5	....	....	....	45.3	....	....
1911	70.4	37.6	4.8	....	16.3	....	41.8	31.7	....	....	....	2.1	....	....	....	24.3	....	....
1912	76.6	36.8	8.9	....	15.7	....	25.9	32.8	....	....	....	.6	....	....	....	20.8	....	....
Germany:																		
1895-1904	14.3	29.8	10.9	....	....	....	....	....	....	....	....	....	....	....	11.9	11.8	....	12.0
1905-1909	8.7	30.3	13.5	....	....	....	....	....	....	....	....	....	....	25.2	8.6	3.9	....	13.2
1910	4.8	29.1	1.4	....	....	....	....	....	....	....	....	....	....	22.8	7.6	1.0	....	15.6
1911	1.1	23.6	56.0	....	....	....	....	....	....	....	....	....	....	17.5	5.2	(1)	....	15.3
1912	(1)	15.7	21.9	....	....	....	....	....	....	....	....	....	....	15.3	6.4	(1)	....	17.8
Italy:																		
1895-1904	44.3	45.3	53.7	....	....	....	....	....	....	....	....	....	....	....	16.0	15.5	....	16.5
1905-1909	25.2	30.8	39.7	....	....	....	9.9	....	....	....	....	....	....	11.3	19.4	11.5	....	27.5
1910	4.3	28.3	35.7	....	....	....	9.7	....	....	....	....	....	....	20.3	15.7	3.0	....	31.4
1911	2.9	20.4	23.0	....	....	....	4.4	....	....	....	....	....	....	14.5	12.2	4.0	....	29.0
1912	10.2	30.6	66.4	....	....	....	3.9	....	....	....	....	....	....	9.3	9.4	1.1	....	24.4

[1] Only 3 years given. [2] Only 4 years given. [3] Only 2 years given. [4] Less than 0.05 per cent.

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.														
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Switzerland, importing from—	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct
Netherlands:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	13.0	....	....	....	....	58.6	....	....	....	3.1	....	....
1910	....	....	....	....	....	....	30.6	....	....	....	....	76.7	....	....	....	13.6	....	....
1911	....	....	....	....	....	....	33.8	....	....	....	....	67.3	....	....	....	10.5	....	....
1912	....	....	....	....	....	....	53.0	....	....	....	....	26.2	....	....	....	8.8	....	....
Sweden:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.1	....	....
1911	....	....	....	....	....	....	....	....	....	....	....	13.7	....	....	....	23.4	....	....
1912	....	....	....	....	....	....	....	....	....	....	....	30.2	....	....	....	20.0	....	....
United States:																		
1895–1904	....	....	....	33.0	42.9	3.1	.....	3.1	....	....	93.2	.....	93.2	....	26.2	.....	....	55.5
1905–1909	....	....	....	22.5	46.5	5.4	.....	9.4	....	....	44.8	.....	88.7	27.0	18.9	.....	....	38.1
1910	....	....	....	13.0	33.8	11.3	.....	22.5	....	....	18.4	.....	49.1	15.8	11.0	.....	....	24.6
1911	....	....	....	15.1	59.6	14.3	.....	31.7	....	....	21.0	.....	86.5	25.5	11.0	.....	....	33.7
1912	....	....	....	12.2	54.8	11.1	.....	26.8	....	....	13.9	.....	80.2	25.2	10.8	.....	....	30.4
United Kingdom, importing from—																		
Argentina:																		
1895–1904	....	....	....	9.5	4.4	11.0	15.0	7.3	16.3	32.9	....	.....	.....	....	7.9	9.2	....	4.9
1905–1909	....	....	....	22.3	8.1	39.0	56.5	12.9	17.1	33.4	....	.....	.....	....	24.0	28.8	....	6.7
1910	....	....	....	29.4	10.9	48.2	69.8	14.8	16.1	25.7	....	.....	.....	....	31.3	39.8	....	2.5
1911	....	....	....	34.3	11.4	59.7	83.0	17.3	29.0	32.6	....	.....	.....	....	33.4	46.1	....	6.3
1912	....	....	....	35.6	11.6	59.3	82.4	17.0	25.3	31.3	....	.....	.....	....	39.4	53.9	....	3.2
Australia:																		
1895–1904	....	....	....	....	16.1	17.5	10.0	26.6	16.7	15.4	....	.....	.....	....	7.0	.7	....	21.5
1905–1909	....	....	....	....	12.0	8.7	2.5	19.0	8.7	17.1	....	.....	.....	....	2.1	1.0	....	5.8
1910	....	....	....	....	20.4	18.3	12.6	27.8	22.8	29.4	....	.....	.....	....	3.9	3.0	....	6.9
1911	....	....	....	....	19.5	17.0	9.7	29.7	29.6	25.2	....	.....	.....	....	6.0	5.4	....	7.4
1912	....	....	....	....	15.2	15.5	11.1	22.3	30.2	20.2	....	.....	.....	....	5.4	5.6	....	5.0
Canada:																		
1895–1904	22.3	14.3	....	....	....	....	....	....	....	....	....	.....	4.8	9.3	....	.....	....	3.9
1905–1909	30.1	29 0	....	....	....	....	....	....	....	....	....	.....	2.7	12.5	....	.....	....	3.3
1910	35.8	100.0	....	....	....	....	....	....	....	....	....	.....	2.6	9.4	....	.....	....	.7
1911	21.1	10.2	....	....	....	....	....	....	....	....	....	.....	2.7	11.2	....	.....	....	2.2
1912	13.9	7.7	....	....	....	....	....	....	....	....	....	.....	4.4	8.1	....	.....	....	2.2
Denmark:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	.....	....	18.4	....	.....	....	....
1905–1909	....	....	....	....	....	....	....	....	....	....	....	.....	....	27.6	....	.....	....	8.4
1910	....	....	....	....	....	....	....	....	....	....	....	.....	....	41.2	....	.....	....	21.3
1911	....	....	....	....	....	....	....	....	....	....	....	.....	....	38.1	....	.....	....	18.0
1912	....	....	....	....	....	....	....	....	....	....	....	.....	....	43.3	....	.....	....	21.4
Germany:																		
1911	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....	....	.....	....	1.7
1912	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....	....	.....	....	2.6
Netherlands:																		
1895–1904	....	....	....	....	....	....	....	30.6	....	....	....	60.1	....	....	....	49.9	....	....
1905–1909	....	....	....	....	....	....	....	28.0	....	....	....	70.8	....	....	....	36.2	....	....
1910	....	....	....	....	....	....	....	27.3	....	....	....	76.3	....	....	....	34.7	....	....
1911	....	....	....	....	....	....	....	26.1	....	....	....	81.8	....	....	....	28.5	....	....
1912	....	....	....	....	....	....	....	34.5	....	....	....	84.4	....	....	....	22.6	....	....
New Zealand:																		
1895–1904	....	....	....	....	6.4	6.5	4.1	10.6	.5	42.9	....	.....	.....	....	....	.....	....	4.3
1905–1909	....	....	....	....	7.4	7.6	5.6	11.7	2.0	41.3	....	.....	.....	....	....	.....	....	1.4
1910	....	....	....	....	9.7	9.4	7.6	13.1	4.6	38.2	....	.....	.....	....	....	.....	....	.6
1911	....	....	....	....	7.9	5.9	3.5	12.0	1.4	36.6	....	.....	.....	....	....	.....	....	5.9
1912	....	....	....	....	8.3	5.9	3.3	12.2	.9	42.5	....	.....	.....	....	....	.....	....	6.2

[1] Less than 0.05 per cent.

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TABLE 11.—*Percentage of imports [for consumption (?)] of live meat animals, meat, and meat products into 15 principal countries received from principal countries from which consigned, by years*—Continued.

Importing country, exporting country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
United Kingdom, importing from—																		
United States:	P.ct	P.ct	P.ct	P.ct	P.ct	P.ct	P. ct	P.ct	P.ct	P.ct	P.ct	P. ct	P.ct	P.ct	P.ct	P. ct	P.ct	P.ct
1895–1904	69.1	42.0	....	50.7	46.6	46.5	68.7	15.6	68.0	0.4	73.2	30.7	94.2	70.8	32.4	24.3	....	51.5
1905–1909	69.5	68.0	....	37.7	47.8	30.0	33.6	19.6	61.4	.1	64.1	19.9	96.3	58.2	30.5	22.6	....	58.3
1910	63.0	....	....	17.6	28.4	7.0	6.8	5.4	22.2	.0	49.8	.2	92.5	41.8	21.5	13.9	....	48.1
1911	77.8	89.8	....	20.0	37.4	4.9	2.4	7.8	17.2	.1	53.7	.9	94.3	45.4	22.2	11.8	....	44.3
1912	81.8	92.3	....	17.7	32.8	2.1	.1	4.8	11.5	.1	53.9	2.7	92.9	44.6	19.0	9.7	....	42.1
Uruguay:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	1.3	....	6.4	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	3.0	....	31.4	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	.9	....	21.7	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	2.6	....	28.3	....	....	....	....	....	....	....	....	....
United States, importing from—																		
Canada:																		
1895–1904	29.2	96.0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	15.5	92.8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1910	2.8	86.5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	1.7	91.5	....	....	....	....	....	....	....	....	....	....	....	....	7.3	....	....	7.3
1912	.4	74.7	....	....	....	....	....	....	....	....	....	....	....	....	13.9	....	....	13.9
1913	6.9	77.2	....	....	....	....	....	....	....	....	....	....	....	....	14.4	....	....	14.4
France:																		
1895–1904	....	....	....	....	....	....	....	19.7	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	....	18.9	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	17.0	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	11.6	....	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	....	13.9	....	....	....	....	....	....	....	....	....	....
1913	....	....	....	....	....	....	....	12.4	....	....	....	....	....	....	....	....	....	....
Germany:																		
1895–1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....	91.2	....	....	91.2
1905–1909	....	....	....	....	....	....	....	....	....	....	....	....	....	....	67.6	....	....	67.6
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	....	81.8	....	....	81.8
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	....	17.8	....	....	17.8
1912	....	....	....	....	....	....	....	....	....	....	....	....	....	....	16.6	....	....	16.6
1913	....	....	....	....	....	....	....	....	....	....	....	....	....	....	18.6	....	....	18.6
Italy:																		
1895–1904	....	....	....	....	....	....	....	2.7	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	....	4.9	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	15.9	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	13.5	....	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	....	12.5	....	....	....	....	....	....	....	....	....	....
1913	....	....	....	....	....	....	....	18.0	....	....	....	....	....	....	....	....	....	....
Mexico:																		
1895–1904	70.6	3.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905–1909	83.6	7.0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1910	96.0	12.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	97.3	5.7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1912	99.0	21.8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1913	92.8	21.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Netherlands:																		
1895–1904	....	....	....	....	....	....	....	12.5	....	....	....	....	....	....	....	....	....	....
1905–1909	....	....	....	....	....	....	....	23.5	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	43.0	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	12.5	....	....	....	....	....	....	7.0	....	....	7.0
1912	....	....	....	....	....	....	....	15.5	....	....	....	....	....	....	5.4	....	....	5.4
1913	....	....	....	....	....	....	....	2.9	....	....	....	....	....	....	3.5	....	....	3.5
United Kingdom:																		
1895–1904	....	....	....	....	....	....	....	15.1	....	....	....	....	....	....	....	....	....	....
1905–1906	....	....	....	....	....	....	....	29.9	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	18.3	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	13.3	....	....	....	....	....	....	52.2	....	....	52.2
1912	....	....	....	....	....	....	....	21.0	....	....	....	....	....	....	41.6	....	....	41.6
1913	....	....	....	....	....	....	....	21.6	....	....	....	....	....	....	44.2	....	....	44.2

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TABLE 12.—*Percentage of total imports into 15 principal countries of live meat animals, meat, and meat products received by each country, by years.*

Importing country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.					Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Austria-Hungary:	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*
1895–1904	4.8	1.1	32.8	1.1	1.7	0.5	.....	0.9	.....	.....	1.0	.....	2.3	0.1	3.7	9.9	2.7	2.5
1905–1909	2.1	.5	12.7	.5	.9	.3	(1)	.5	.....	.....	.8	0.3	1.7	.1	.5	1.6	.....	.6
1910	.4	.1	2.4	.1	.2	.2	(1)	.3	.....	.....	.1	(1)	.2	(1)	.2	(1)	.....	.5
1911	2.7	.4	10.6	1.2	1.7	1.4	1.2	1.9	.....	.....	1.7	4.4	2.4	.8	.2	.1	.....	.5
1912	4.9	.6	7.6	.5	.5	.4	.4	.6	.....	.....	.9	6.6	.7	.1	.2	.1	.....	.6
Belgium:																		
1895–1904	4.3	5.1	(1)	3.4	5.4	.7	.....	1.2	.....	.....	1.4	.....	3.8	.....	19.0	1.5	23.9	20.4
1905–1909	5.1	6.5	(1)	3.0	5.3	.4	.....	.8	.....	.....	1.6	.1	3.7	.....	17.9	.4	24.8	18.1
1910	5.2	6.5	.1	3.3	6.9	.3	.....	.6	.....	.....	1.2	1.4	2.8	.....	20.1	.2	31.6	13.8
1911	4.6	7.9	(1)	4.0	8.2	.4	.....	.9	.....	.....	1.8	.5	4.0	.....	21.8	.3	36.3	14.6
1912	8.3	8.1	(1)	3.7	7.6	.3	.....	.8	.....	.....	1.4	(1)	3.2	.....	20.7	1.1	37.0	13.5
Cuba:																		
1895–1904	11.2	(1)	1.6	1.3	1.4	1.7	.1	.1	20.0	(1)	1.7	.1	3.5	.7	.2	.....	.....	.5
1905–1909	14.1	(1)	2.1	2.8	3.1	2.8	.1	.2	37.5	(1)	4.5	.4	7.7	2.2	.7	.....	.....	2.0
1910	(1)	(1)	1.1	2.9	3.9	2.4	(1)	.6	36.7	(1)	6.9	.3	13.7	2.9	.6	.....	.....	1.9
1911	(1)	(1)	1.3	2.7	3.5	2.3	(1)	.6	30.6	(1)	5.3	.1	9.2	2.5	.7	.....	.....	2.2
1912	(1)	(1)	2.5	2.8	3.5	2.3	(1)	.5	34.7	(1)	5.6	.1	9.4	2.9	.6	.....	.....	1.9
Denmark:																		
1895–1904	.2	.1	.3	1.9	3.1	2.1	(1)	3.3	2.2	0.3	.7	.2	.....	1.1	6.3	.....	10.6	3.9
1905–1909	.5	(1)	.1	2.6	4.6	2.9	.1	4.8	5.8	.8	3.4	.2	6.0	1.6	.8	.....	.....	2.2
1910	1.6	(1)	.9	.9	1.8	1.2	(1)	2.3	.6	.8	.8	.2	1.9	.1	.4	.....	.1	1.0
1911	2.7	(1)	3.0	.8	1.5	1.2	.1	2.3	.7	1.0	.5	1.4	1.0	(1)	.4	.....	.1	1.1
1912	.9	(1)	1.0	.7	1.2	.9	.1	1.8	.6	.9	.5	1.7	.8	(1)	.3	.....	.1	1.0
France:																		
1895–1904	3.7	40.8	6.1	2.8	4.7	3.1	.....	5.4	....	.4	2.9	8.0	4.2	1.5	4.1	4.8	3.8	4.0
1905–1909	2.9	45.6	29.0	1.6	2.7	1.7	.....	3.3	....	(1)	1.3	.5	1.4	1.4	3.9	2.3	4.5	3.9
1910	3.7	52.1	5.5	1.2	1.8	1.0	.....	2.1	....	(1)	1.0	.1	.4	1.6	3.3	2.7	2.9	4.3
1911	2.2	44.5	37.5	2.6	3.9	1.9	.....	3.9	....	.1	3.9	15.3	4.1	2.4	3.9	3.8	3.7	4.3
1912	1.9	37.5	54.5	2.5	3.8	1.8	.....	3.9	....	.2	3.6	7.8	3.7	2.9	4.0	2.9	3.8	5.4
Germany:																		
1895–1904	17.4	.1	25.8	12.2	19.6	10.4	8.4	12.3	5.4	.1	16.9	22.8	35.2	4.2	11.7	.2	1.8	27.1
1905–1909	18.7	.3	19.0	11.8	20.0	9.9	4.9	14.0	9.0	.1	16.8	23.8	34.1	2.1	12.6	(1)	.1	35.4
1910	18.7	.6	31.6	9.5	16.0	9.1	4.3	14.3	2.9	.1	13.8	12.2	31.2	1.8	12.5	.....	.1	40.7
1911	16.8	.1	17.8	10.3	18.5	9.2	4.5	14.7	3.0	.1	15.2	3.6	32.9	1.5	11.5	.....	.1	35.3
1912	20.1	.3	18.5	12.2	20.0	11.3	8.0	15.7	4.1	.1	18.8	27.5	35.6	2.5	11.2	.....	.1	35.6
Italy:																		
1895–1904	1.1	.3	.7	1.5	3.1	.....	.....	.....	.....	.....	.5	.....	.7	.4	9.6	.1	19.4	2.3
1905–1909	4.7	.2	2.5	1.7	3.2	(1)	.....	(1)	.....	.....	.7	.....	.5	.9	11.3	1.8	21.6	2.6
1910	14.0	.2	2.5	1.6	3.4	(1)	.....	(1)	.....	.....	.4	.....	.6	.4	10.2	2.2	17.3	3.6
1911	13.9	.1	.3	2.1	3.6	(1)	.....	(1)	.....	.....	1.0	.....	1.0	1.2	12.2	11.8	18.6	3.3
1912	5.5	.1	.3	2.2	3.2	(1)	.....	(1)	.....	.....	.8	.....	.5	1.2	13.3	17.6	18.3	3.0
Netherlands:																		
1895–1904	.1	1.5	.1	7.2	15.9	14.3	.....	24.8	.....	.....	4.1	.....	10.9	.....	4.9	(1)	.....	12.2
1905–1909	.1	.8	.4	7.4	16.6	13.3	(1)	25.7	....	(1)	5.5	.1	11.6	1.0	2.6	(1)	.....	7.5
1910	.2	.3	6.7	6.4	15.5	11.9	(1)	24.3	....	(1)	3.2	.1	7.7	.3	1.9	.2	.....	6.2
1911	.1	(1)	(1)	7.1	16.8	12.3	.1	26.3	....	(1)	5.6	.1	12.2	.6	2.2	.4	.....	6.6
1912	.1	(1)	(1)	7.6	18.0	12.3	.2	26.8	....	(1)	6.9	2.2	14.1	1.1	2.2	.5	.....	6.6
Norway:																		
1895–1904	1.0	.1	.1	1.5	1.6	1.4	.....	2.4	.2	.....	1.5	.....	1.3	1.8	2.9	.....	.....	7.2
1905–1909	.9	.1	(1)	1.1	1.6	1.3	.....	2.6	.1	.....	1.0	.....	1.0	1.0	2.2	.....	.....	6.3
1910	1.3	.1	(1)	1.0	1.5	1.1	.....	2.3	(1)	.....	.7	.....	1.1	.6	2.0	.....	.....	6.5
1911	1.4	.1	(1)	.9	1.3	1.1	.....	2.3	(1)	.....	.7	.....	.7	.8	1.7	.....	.....	5.2
1912	1.3	.1	(1)	.8	1.3	1.0	.....	2.2	(1)	.....	.6	.....	.7	.7	1.4	.....	.....	4.5
Russia:																		
1895–1904	3.3	11.1	2.0	1.4	3.4	.1	.....	.1	.....	.....	.....	.....	.....	.....	10.7	.8	23.3	.5
1905–1909	4.7	17.2	13.0	2.5	5.2	.1	.....	.1	.....	.....	.....	.....	.....	.....	19.9	10.5	36.6	2.8
1910	11.2	18.9	10.6	3.4	7.4	.2	.....	.4	.....	.....	.....	.....	.....	.....	23.1	17.9	38.6	1.2
1911	12.0	25.0	5.7	2.8	5.7	.2	.....	.4	.....	.....	.....	.....	.....	.....	18.4	15.1	31.5	1.6
1912	10.6	34.3	5.0	2.8	5.3	.1	.....	.2	.....	.....	.....	.....	.....	.....	18.6	16.7	31.1	2.5

[1] Less than 0.05 per cent.

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TABLE 12.—*Percentage of total imports into 15 principal countries of live meat animals, meat, and meat products received by each country, by years*—Continued.

Importing country, period, and year.	Live animals.			Meat and meat products.															
						Beef and beef products.						Pork and pork products.				Unidentified meat and meat products.			
	Cattle.	Sheep.	Swine.	Total.	Total fats and oils.	Total.	Beef, fresh, chilled, and frozen.	Fats and oils.	Other.	Mutton.	Total.	Pork, fresh, chilled, and frozen.	Fats and oils.	Other.	Total.	Meat, fresh, chilled, and frozen.	Fats and oils.	Other.
Spain:	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*	*P.ct*
1895–1904	1.4	11.3	7.6	1.0	2.1	(1)	.....	.....	0.6	.....	0.2	.....	.....	0.3	7.0	.....	14.5	1.3
1905–1909	1.3	12.9	6.5	.8	1.7	0.1	.....	.....	.8	.....	.1	.....	.....	.2	6.2	(1)	12.1	1.7
1910	1.3	10.9	4.6	.8	1.7	.1	.....	.....	1.6	.....	.1	.....	.....	.1	5.2	(1)	9.1	2.3
1911	1.8	12.4	7.6	.8	1.7	.1	.....	.....	1.4	.....	(1)	.....	.....	.1	5.0	(1)	9.5	1.6
1912	1.4	11.9	5.9	.8	1.6	.1	.....	.....	.9	.....	.1	.....	.....	.1	4.8	(1)	9.6	1.8
Sweden:																		
1895–1904	.2	(1)	.2	1.1	1.1	1.2	.....	2.0	.....	.....	1.3	.....	0.5	2.0	.9	.....	.....	2.2
1905–1909	.4	(1)	.1	.9	1.2	1.1	0.2	1.9	.4	0.2	.9	.....	.7	1.2	.7	0.1	.3	1.6
1910	.2	(1)	.2	.5	.8	.6	.1	1.1	.3	.2	.4	.....	.4	.4	.5	.1	.3	1.1
1911	.1	(1)	.1	.5	.7	.6	.1	1.2	.2	.2	.5	.....	.3	.7	.4	(1)	.2	1.0
Switzerland:																		
1895–1904	5.1	2.7	22.7	.8	.8	.5	.....	.9	.....	.....	.3	.....	.9	.....	3.4	11.9	.....	4.1
1905–1909	4.8	4.4	14.6	.8	.5	.5	.5	.6	.....	.....	.5	4.6	.6	.1	2.9	7.9	.....	4.1
1910	8.0	5.1	33.8	.7	.4	.4	.4	.4	.....	.....	.7	5.8	.6	.2	2.6	7.5	.....	3.8
1911	7.2	4.8	16.1	1.2	.5	.5	.6	.5	.....	.....	1.4	16.7	.7	.2	3.9	12.7	.....	3.9
1912	9.1	5.3	4.7	1.4	.4	.5	.6	.4	.....	.....	1.9	21.0	.7	.2	3.8	9.8	.....	4.4
United Kingdom:																		
1895–1904	34.8	16.2	(1)	62.7	35.9	63.8	91.5	46.2	71.6	99.2	67.5	68.9	36.7	87.9	15.6	70.8	.....	11.8
1905–1909	34.8	3.8	(1)	62.4	33.3	65.5	94.2	45.2	46.4	98.9	62.9	70.0	31.0	88.2	17.7	75.4	.....	11.0
1910	18.1	(1)	.....	67.5	38.2	71.1	95.2	50.4	57.9	98.9	70.7	79.9	39.4	91.6	17.3	69.2	.....	12.8
1911	18.0	2.2	.....	62.8	32.1	68.5	93.4	44.3	64.1	98.6	62.4	57.9	31.5	89.2	17.0	55.8	.....	16.6
1912	4.8	.7	.....	61.8	33.3	68.8	90.7	46.6	59.7	98.8	58.9	33.1	30.6	88.3	18.1	51.3	.....	16.6
United States:																		
1895–1904	11.4	9.6	(1)	.1	.2	.2	.....	.4	.....	.....	.....	.....	.....	.....	(1)	.....	.....	(1)
1905–1909	4.9	7.7	.....	.1	.1	.1	.....	.3	.....	.....	.....	.....	.....	.....	.1	.....	.....	.2
1910	16.1	5.2	.....	.2	.5	.4	.....	.9	.....	.....	.....	.....	.....	.....	.1	.....	.....	.3
1911	16.5	2.5	.....	.2	.3	.3	.....	.7	.....	.....	.....	.....	.....	.....	.7	.....	.....	2.2
1912	31.1	1.1	.....	.2	.3	.2	.....	.5	.....	.....	.....	.....	.....	.....	.8	.....	.....	2.6

[1] Less than 0.05 per cent.

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TABLE 13.—*Beef, mutton, pork, and their products, and fats and oils as percentages of total imports of meat and meat products into 15 principal countries, by years.*

Importing country, period, and year.	Percentage of total imports of meat and meat products into each country during the specified period or year.											
	Total beef, mutton, pork, and unidentified meat and meat products, excluding fats and oils.	Beef and beef products.		Mutton.	Pork and pork products.		Unidentified meat and meat products.		Fats and oils.			
		Total.	Excluding fats and oils.		Total.	Excluding fats and oils.	Total.	Excluding fats and oils.	Total.	Beef.	Pork.	Unidentified.
Total, all countries:	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1895–1904	58.6	33.8	14.3	10.4	42.5	26.5	13.3	7.4	41.4	19.5	16.0	5.9
1905–1909	58.4	37.5	18.1	11.6	38.4	22.0	12.5	6.7	41.6	19.4	16.4	5.8
1910	61.0	44.4	22.6	15.3	25.9	15.9	14.4	7.2	39.0	21.8	10.0	7.2
1911	60.5	40.2	21.4	13.2	31.7	18.0	14.9	7.9	39.5	18.8	13.7	7.0
1912	60.7	42.1	22.9	12.1	30.9	17.3	14.9	8.4	39.3	19.2	13.6	6.5
Austria-Hungary:												
1895–1904	34.2	16.8	.....	.....	37.4	3.2	45.8	31.0	65.8	16.8	34.2	14.8
1905–1909	18.7	20.7	.4	.....	64.9	4.0	14.4	14.3	81.3	20.4	60.9	.....
1910	29.2	58.3	2.0	.....	20.3	5.8	21.4	21.4	70.8	56.3	14.5	.....
1911	40.8	49.5	19.2	.....	47.9	19.0	2.6	2.6	59.2	30.3	28.9	.....
1912	58.0	36.9	14.1	.....	56.6	37.4	6.5	6.5	42.0	22.8	19.2	.....
1913	58.4	34.7	2.2	.....	46.1	37.0	19.2	19.2	41.6	32.6	9.0	.....
Belgium:												
1895–1904	33.2	6.7	.....	.....	18.0	.....	75.3	33.2	66.8	6.7	18.0	42.1
1905–1909	26.9	5.5	.....	.....	20.0	.1	74.5	26.8	73.1	5.5	19.9	47.7
1910	19.2	4.0	.....	.....	9.1	.7	86.9	18.5	80.8	4.0	8.4	68.4
1911	18.2	4.4	.....	.....	14.1	.2	81.5	18.0	81.8	4.4	13.8	63.6
1912	18.4	3.9	.....	.....	11.7	.....	84.4	18.4	81.6	3.9	11.7	66.0
Cuba:												
1900–1904	56.3	42.3	41.0	.1	55.6	13.2	2.0	2.0	43.7	1.3	42.4	.....
1905–1909	54.0	36.5	34.8	.1	60.3	16.0	3.1	3.1	46.0	1.7	44.3	.....
1910	49.0	36.2	31.9	.....	61.0	14.3	2.8	2.8	51.0	4.4	46.6	.....
1911	49.5	34.5	30.5	.....	61.6	15.1	3.9	3.9	50.5	4.0	46.5	.....
1912	50.0	34.8	31.2	.....	62.0	15.6	3.2	3.2	50.0	3.6	46.4	.....
Denmark:												
1895–1904	31.5	38.1	3.4	1.9	15.0	15.1	45.0	11.1	68.5	34.6	.....	33.9
1905–1909	26.1	42.1	6.1	3.5	50.6	12.7	3.8	3.8	73.9	35.9	38.0	.....
1910	21.4	58.4	2.1	12.4	23.7	2.0	5.5	4.9	78.6	56.3	21.7	.6
1911	30.6	56.6	5.4	15.2	21.2	3.7	7.0	6.3	69.4	51.3	17.4	.7
1912	33.9	54.0	5.0	16.0	22.4	6.0	7.6	6.9	66.1	49.1	16.3	.7
France:												
1895–1904	31.4	37.0	.....	1.4	42.7	19.1	18.9	10.9	68.6	37.0	23.6	8.0
1905–1909	31.3	39.2	.....	.2	30.9	17.2	29.7	13.9	68.7	39.2	13.7	15.8
1910	40.9	38.1	.....	.3	22.1	18.6	39.5	22.0	59.1	38.1	3.5	17.5
1911	39.3	28.8	.....	.5	47.9	26.1	22.8	12.7	60.7	28.8	21.8	10.1
1912	39.7	30.3	.....	1.0	44.4	24.2	24.3	14.5	60.3	30.3	20.2	9.8
Germany:												
1895–1904	33.8	28.6	9.2	.1	58.6	12.7	12.7	11.8	66.2	19.5	45.8	.9
1905–1909	29.3	31.5	8.5	.1	55.0	7.4	13.4	13.3	70.7	23.0	47.6	.1
1910	33.8	42.8	9.8	.2	37.9	4.8	19.1	19.0	66.2	33.0	33.1	.1
1911	28.9	36.0	9.0	.1	47.1	3.1	16.8	16.7	71.1	27.0	44.0	.1
1912	35.9	38.7	14.2	.1	47.5	8.0	13.7	13.6	64.1	24.5	39.6	.....
Italy:												
1895–1904	15.4	.....	.....	.....	14.4	7.2	85.6	8.2	84.6	.....	7.3	77.3
1905–1909	20.5	.2	.....	.....	16.3	11.2	83.5	9.3	79.5	.2	5.1	74.2
1910	17.5	.2	.....	.....	7.1	3.6	92.7	13.9	82.5	.2	3.6	78.7
1911	33.2	.1	.....	.....	15.1	8.9	84.8	24.3	66.8	.2	6.2	60.4
1912	43.7	.1	.....	.....	11.4	8.1	88.5	35.6	56.3	.1	3.3	52.9
Netherlands:												
1895–1904	9.0	66.9	.....	.....	24.1	.....	9.0	9.0	91.0	66.9	24.1	.....
1905–1909	7.2	67.1	.....	.....	28.4	2.7	4.5	4.5	92.8	67.1	25.7	.....
1910	5.2	82.8	.1	.....	12.9	.8	4.3	4.3	94.8	82.7	12.1	.....
1911	6.3	70.1	.1	.1	25.1	1.4	4.7	4.7	93.7	70.0	23.7	.....
1912	7.8	67.7	.6	.....	28.0	2.9	4.3	4.3	92.2	67.1	25.1	.....
Norway:												
1895–1904	55.5	31.2	.4	.....	42.9	29.2	25.9	25.9	44.5	30.9	13.6	.....
1905–1909	42.4	43.3	.1	.....	32.3	17.9	24.4	24.4	57.6	43.2	14.4	.....
1910	38.0	50.6	.....	.....	19.7	8.3	29.7	29.7	62.0	50.6	11.4	.....
1911	42.7	47.2	.1	.....	24.7	14.5	28.1	28.1	57.3	47.1	10.2	.....
1912	37.7	51.4	.1	.....	23.2	12.2	25.4	25.4	62.3	51.3	11.0	.....

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TABLE 13.—*Beef, mutton, pork, and their products, and fats and oils as percentages of total imports of meat and meat products into 15 principal countries, by years*—Con.

Importing country, period, and year.	Percentage of total imports of meat and meat products into each country during the specified period or year.											
	Total beef, mutton, pork, and unidentified meat and meat products, excluding fats and oils.	Beef and beef products.		Mutton.	Pork and pork products.		Unidentified meat and meat products.		Fats and oils.			
		Total.	Excluding fats and oils.		Total.	Excluding fats and oils.	Total.	Excluding fats and oils.	Total.	Beef.	Pork.	Unidentified.
Russia:	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
1895–1904	3.0	1.3	.....	.....	.....	.....	98.7	3.0	97.0	1.3	.....	95.7
1905–1909	14.5	.8	.....	.....	.....	.....	99.2	14.5	85.5	.8	.....	84.7
1910	16.0	2.7	.....	.....	.....	.....	97.3	16.0	84.0	2.7	.....	81.3
1911	19.2	2.7	.....	.....	.....	.....	97.3	19.2	80.8	2.7	.....	78.1
1912	26.5	1.5	.....	.....	.....	.....	98.5	26.5	73.5	1.5	.....	72.0
Spain:												
1895–1904	15.1	1.7	1.7	.....	6.4	6.4	91.9	7.0	84.9	.....	.....	84.9
1905–1909	17.2	2.6	2.6	.....	5.9	5.9	91.5	8.7	82.8	.....	.....	82.8
1910	18.8	5.1	5.1	.....	1.2	1.2	93.7	12.5	81.2	.....	.....	81.2
1911	15.9	4.6	4.6	.....	1.3	1.3	94.1	10.0	84.1	.....	.....	84.1
1912	15.9	2.8	2.8	.....	1.8	1.8	95.4	11.3	84.1	.....	.....	84.1
Sweden:												
1895–1904	55.9	37.0	.....	.....	52.0	44.9	11.0	11.0	44.1	37.0	7.1	.....
1905–1909	43.1	47.3	5.2	2.3	40.2	27.3	10.2	8.3	56.9	42.1	12.9	1.9
1910	35.0	57.9	5.7	6.5	20.7	12.1	14.9	10.7	65.0	52.1	8.6	4.3
1911	41.3	51.0	4.6	5.7	31.0	21.3	12.3	9.7	58.7	46.5	9.6	2.6
Switzerland:												
1895–1904	59.0	22.9	.....	.....	18.1	.....	59.0	59.0	41.0	22.9	18.1	.....
1905–1909	72.4	25.5	10.8	.....	27.4	14.5	47.1	47.1	27.6	14.7	12.9	.....
1910	80.5	22.2	11.0	.....	25.2	16.9	52.6	52.6	19.5	11.2	8.3	.....
1911	84.4	16.9	9.3	.....	35.6	27.6	47.5	47.5	15.6	7.6	8.0	.....
1912	87.1	14.8	8.6	.....	42.9	36.1	42.3	42.4	12.9	6.1	6.8	.....
United Kingdom:												
1895–1904	76.3	34.4	20.1	16.5	45.8	36.4	3.3	3.3	23.7	14.4	9.3	.....
1905–1909	77.8	39.4	25.4	18.3	38.7	30.6	3.6	3.5	22.2	14.0	8.2	.....
1910	77.9	46.7	30.5	22.4	27.2	21.3	3.7	3.7	22.1	16.2	5.9	.....
1911	79.8	43.8	30.5	20.7	31.5	24.6	4.0	4.0	20.2	13.3	6.9	.....
1912	78.9	46.9	32.5	19.3	29.4	22.7	4.4	4.4	21.1	14.4	6.7	.....
United States:												
1895–1904	2.5	97.5	.....	.....	.....	.....	2.5	2.5	97.5	97.5	.....	.....
1905–1909	17.1	82.9	.....	.....	.....	.....	17.1	17.1	82.9	82.9	.....	.....
1910	6.4	93.6	.....	.....	.....	.....	6.4	6.4	93.6	93.6	.....	.....
1911	47.0	53.0	.....	.....	.....	.....	47.0	47.0	53.0	53.0	.....	.....
1912	51.5	45.5	.....	.....	.....	.....	54.5	54.5	45.5	45.5	.....	.....
1913	35.8	64.2	.....	.....	.....	.....	35.8	35.8	64.2	64.2	.....	.....

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TABLE 14.—*Estimated production and consumption of meat in the United States.*

Year and class of meat.	Animals slaughtered.	Average net live animals exported.	Average dressed weight.	Average weight of extra-edible parts.	Production. Total.	Production. Dressed.	Production. Extra-edible.
1900.	*Number.*	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Beef, except veal	12,978,000	240,000	515 / 1 700	98.093	8,148,263,274	6,851,670,000	1,296,593,274
Veal	5,831,000	.....	130	9.6916	814,541,720	758,030,000	56,511,720
Total beef	18,809,000	240,000	.....	.....	8,962,804,994	7,609,700,000	1,353,104,994
Mutton and lamb	14,316,000	.....	41	2.0557	616,385,401	586,956,000	29,429,401
Pork, including lard	50,145,000	36,000	160	25.055	9,286,244,955	8,028,960,000	1,257,284,955
Goat	.....	.....	.....	.....	.....	.....	.....
Total	83,270,000	.....	.....	.....	18,865,435,350	16,225,616,000	2,639,819,350
1909.							
Beef, except veal	13,611,422	90,000	543 / 1 700	98.093	8,798,015,734	7,454,002,146	1,344,013,588
Veal	6,515,976	.....	105	9.6916	747,327,713	684,177,480	63,150,233
Total beef	20,127,398	90,000	.....	.....	9,545,343,447	8,138,179,626	1,407,163,821
Mutton and lamb	14,724,699	.....	41	2.0557	633,982,223	603,712,659	30,269,564
Pork, including lard	53,219,568	18,000	154	25.055	9,532,452,738	8,198,585,472	1,333,867,266
Goat	285,553	.....	41	2.0557	12,294,684	11,707,673	587,011
Total	88,357,218	.....	.....	.....	19,724,073,092	16,952,185,430	2,771,887,662

Year and class of meat.	Average domestic exports. Total, dressed (000 omitted.)	Dressed (000 omitted).	Average net live animals exported. Dressed (000 omitted).	Extra-edible.	Average imports, dressed (000 omitted).	Consumption. Total.	Consumption. Dressed.	Consumption. Extra-edible.
1900.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Beef, except veal	834,000	666,000	168,000	23,542,320	2,500	7,293,220,954	6,020,170,000	1,273,050,954
Veal	.....	.....	.....	.....	.....	814,541,720	758,030,000	56,511,720
Total beef	834,000	666,000	168,000	23,542,320	2,500	8,107,762,674	6,778,200,000	1,329,562,674
Mutton and lamb	600	600	.....	.....	.....	615,785,401	586,356,000	29,429,401
Pork, including lard	1,601,760	1,596,000	5,760	901,980	.....	7,683,582,975	6,427,200,000	1,256,382,975
Goat	.....	.....	.....	.....	.....	.....	.....	.....
Total	2,436,360	2,262,600	173,760	24,444,300	2,500	16,407,131,050	13,791,756,000	2,615,375,050
1909.								
Beef, except veal	491,000	428,000	63,000	8,828,370	4,500	8,302,687,364	6,967,502,146	1,335,185,218
Veal	.....	.....	.....	.....	.....	747,327,713	684,177,480	63,150,233
Total beef	491,000	428,000	63,000	8,828,370	4,500	9,050,015,077	7,651,679,626	1,398,335,451
Mutton and lamb	1,600	1,600	.....	.....	.....	632,382,223	602,112,659	30,269,564
Pork, including lard	1,002,772	1,000,000	2,772	450,990	500	8,529,729,748	7,196,313,472	1,333,416,276
Goat	.....	.....	.....	.....	.....	12,294,684	11,707,673	587,011
Total	1,495,372	1,429,600	65,772	9,279,360	5,000	18,224,421,732	15,461,813,430	2,762,608,302

[1] Export cattle.

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Year and class of meat.	Slaughterings inspected (000 omitted).	Home slaughterings (000 omitted).	Total domestic slaughterings (000 omitted).	Average dressed meat weight.	Total meat weight (000 omitted).	Meat condemned (000 omitted).	Meat of domestic slaughterings consumed (000 omitted).	Imports (000 omitted).	Exports (000 omitted).	Net imports (000 omitted).	Consumption.		
											Total (000 omitted).	Per capita.	Ratio to total.
1904.	*Head.*	*Head.*	*Head.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pr. ct.*
Beef, except veal	3,329	89	3,418	554.700	1,896,093	18,194	1,877,899	.....	.....	.....	.....	.....	.....
Veal	4,287	82	4,369	88.184	385,307	1,194	384,113	.....	.....	.....	.....	.....	.....
Total beef	7,616	171	7,787	.....	2,281,400	19,388	2,262,012	147,033	3,191	143,842	2,405,854	40.5	35.3
Mutton, including lamb	2,269	628	2,897	48.5012	140,508	109	140,399	379	238	141	140,540	2.4	2.1
Pork, including lard	15,066	5,933	20,999	187.391	3,935,069	3,934	3,931,135	2,278,803	4,538	223,265	4,154,400	69.8	61.0
Total beef, mutton, pork	24,951	6,732	31,683	.....	6,356,977	23,431	6,333,546	375,215	7,967	367,248	6,700,794	112.7	98.4
Goat	424	734	1,158	35.2736	40,844	44	40,800	.....	.....	.....	.....	.....	.....
Horse	123	.....	123	518.081	63,604	691	62,913	.....	.....	.....	.....	.....	.....
All other	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total, goat, horse, etc	547	734	1,281	.....	104,448	735	103,713	3,195	1,743	1,452	105,165	1.7	1.6
Grand total	25,498	7,468	32,964	.....	6,461,425	24,166	6,437,259	378,410	9,710	368,700	6,805,959	114.4	100.0
1905.													
Beef, except veal	3,662	89	3,751	549.726	2,062,273	19,840	2,042,433	.....	.....	.....	.....	.....	.....
Veal	4,394	82	4,476	88.184	394,706	1,284	393,422	.....	.....	.....	.....	.....	.....
Total beef	8,056	171	8,227	.....	2,456,979	21,124	2,435,855	170,803	3,697	167,106	2,602,961	42.9	38.1
Mutton, including lamb	2,436	628	3,064	48.5012	148,619	113	148,506	655	245	410	148,916	2.5	2.2
Pork, including lard	13,569	5,933	19,502	187.391	3,654,596	3,646	3,650,950	314,589	4,104	310,485	3,961,435	65.3	58.0
Total beef, mutton, pork	24,061	6,732	30,793	.....	6,260,194	24,883	6,235,311	486,047	8,046	478,001	6,713,312	110.7	98.3
Goat	435	734	1,169	35.2736	41,243	42	41,201	.....	.....	.....	.....	.....	.....
Horse	148	.....	148	518.081	76,540	782	75,758	.....	.....	.....	.....	.....	.....
All other	6	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	589	734	1,323	.....	117,783	824	116,959	3,981	1,862	2,119	119,078	2.0	1.7
Grand total	24,650	7,466	32,116	.....	6,377,977	25,707	6,352,270	490,028	9,908	480,120	6,832,390	112.7	100.0
1906.													
Beef, except veal	3,610	99	3,709	549.594	2,038,167	16,892	2,021,275	.....	.....	.....	.....	.....	.....
Veal	4,217	95	4,312	88.184	380,277	1,173	379,104	.....	.....	.....	.....	.....	.....
Total beef	7,827	194	8,021	.....	2,418,444	18,065	2,400,379	192,469	1,769	190,700	2,591,079	42.4	38.0

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Mutton, including lamb	2,297	589	2,886	48.5012	139,968	114	139,854	627	55	572	140,426	2.3	2.1
Pork, including lard	13,365	6,087	19,452	187.391	3,645,204	3,232	3,641,972	333,338	3,273	330,065	3,972,037	65.0	58.2
Total, beef, mutton, pork	23,489	6,870	30,359	.....	6,203,616	21,411	6,182,205	526,434	5,097	521,337	6,703,542	109.7	98.3
Goat	450	751	1,200	35.2736	42,336	41	42,295	.....	.....	.....	.....	.....	.....
Horse	147	.....	147	518.081	76,378	860	75,518	.....	.....	.....	.....	.....	.....
All other	7	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	604	751	1,354	.....	118,714	901	117,813	1,948	1,610	338	118,151	1.9	1.7
Grand total	24,093	7,621	31,713	.....	6,322,330	22,312	6,300,018	528,382	6,707	521,675	6,821,693	111.6	100.0
1907.													
Beef, except veal	3,542	99	3,641	547.056	1,991,977	17,109	1,974,868	.....	.....	.....	.....	.....	.....
Veal	4,371	95	4,466	88.184	393,860	1,166	392,694	.....	.....	.....	.....	.....	.....
Total beef	7,913	194	8,107	.....	2,385,837	18,275	2,367,562	165,617	1,448	164,169	2,531,731	40.8	35.0
Mutton, including lamb	2,186	589	2,775	48.5012	134,570	114	134,456	576	40	536	134,992	2.2	1.9
Pork, including lard	16,398	6,087	22,485	187.391	4,213,533	3,403	4,210,130	245,568	3,394	242,174	4,452,304	71.8	61.6
Total beef, mutton, pork	26,497	6,870	33,367	.....	6,733,940	21,792	6,712,148	411,761	4,882	406.879	7,119,027	114.8	98.5
Goat	495	751	1,246	35.2736	43,929	42	43,887	.....	.....	.....	.....	.....	.....
Horse	136	.....	136	518.081	70,600	898	69,702	.....	.....	.....	.....	.....	.....
All other	6	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	637	751	1,388	.....	114,529	940	113,589	155	1,578	1,423	112,166	1.8	1.5
Grand total	27,134	7,621	34,755	.....	6,848,469	22,732	6,825,737	411,916	6,460	405,456	7,231,193	116.6	100.0
1908.													
Beef, except veal	3,773	99	3,871	544.98	2,109,794	18,307	2,091,487	.....	.....	.....	.....	.....	.....
Veal	4,752	95	4,847	88.184	427,455	1,110	426,345	.....	.....	.....	.....	.....	.....
Total beef	8,525	194	8,718	.....	2,537,249	19,417	2,517,832	126,808	1,992	124,816	2,642,648	42.0	35.8
Mutton, including lamb	2,281	589	2,870	48.5012	139,173	115	139,058	420	56	364	139,422	2.2	1.9
Pork, including lard	16,508	6,087	22,596	187.391	4,234,249	3,164	4,231,085	257,917	3,619	254,298	4,485,383	71.4	60.8
Total beef, mutton, pork	27,314	6,870	34,184	.....	6,910,671	22,696	6,887,975	385,145	5,667	379,478	7,267,453	115.6	98.5
Goat	485	751	1,235	35.2736	43,578	39	43,539	.....	.....	.....	.....	.....	.....
Horse	137	.....	137	518.081	71,105	820	70,285	.....	.....	.....	.....	.....	.....
All other	6	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	628	751	1,378	.....	114,683	859	113,824	169	1,559	1,390	112,434	1.8	1.5

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Year and class of meat.	Slaughterings inspected (000 omitted).	Home slaughterings (000 omitted).	Total domestic slaughterings (000 omitted).	Average dressed meat weight.	Total meat weight (000 omitted).	Meat condemned (000 omitted).	Meat of domestic slaughterings consumed (000 omitted).	Imports (000 omitted).	Exports (000 omitted).	Net imports (000 omitted).	Consumption.		
											Total (000 omitted).	Per capita.	Ratio to total.
1909.	*Head.*	*Head.*	*Head.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pr. ct.*
Beef, except veal	4,118	99	4,217	543.013	2,289,830	18,758	2,271,072	.....	.....	.....	.....	.....	.....
Veal	5,144	95	5,239	88.184	461,994	1,120	460,874	.....	.....	.....	.....	.....	.....
Total beef	9,262	194	9,456	.....	2,751,824	19,878	2,731,946	140,191	1,951	138,240	2,870,186	45.0	38.6
Mutton, including lamb	2,477	589	3,066	48.5012	148,693	101	148,592	584	39	545	149,137	2.3	2.0
Pork, including lard	15,573	6,087	21,660	187.391	4,058,980	2,789	4,056,191	239,326	3,532	235,794	4,291,985	67.4	57 8
Total beef, mutton, pork	27,312	6,870	34,182	.....	6,959,497	22,768	6,936,729	380,101	5,522	374,579	7,311,308	114.7	98.4
Goat	516	751	1,267	35.2736	44,690	40	44,650	.....	.....	.....	.....	.....	.....
Horse	152	.....	152	518.081	78,859	894	77,965	.....	.....	.....	.....	.....	.....
All other	7	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	675	751	1,426	.....	123,549	934	122,615	134	1,594	1,460	121,155	1.9	1.6
Grand total	27,987	7,621	35,608	.....	7,083,046	23,702	7,059,344	380,235	7,116	373,119	7,432,463	116.6	100.0
1910.													
Beef, except veal	3,954	63	4,017	545.489	2,191,067	18,033	2,173,034	.....	.....	.....	.....	.....	.....
Veal	4,742	88	4,829	88.184	425,869	1,063	424,806	.....	.....	.....	.....	.....	.....
Total beef	8,696	151	8,846	.....	2,616,936	19,096	2,597,840	166,354	1,100	165,254	2,763,094	42.6	37.8
Mutton, including lamb	2,434	509	2,943	48.5012	142,761	114	142,647	651	35	616	143,263	2.2	2.0
Pork, including lard	16,335	5,794	22,130	187.391	4,146,895	3,038	4,143,857	147,530	3,555	143,975	4,287,832	66.0	58.6
Total beef, mutton, pork	27,465	6,454	33,919	.....	6,906,592	22,248	6,884,344	314,535	4,690	309,845	7,194,189	110.8	98.4
Goat	477	732	1,208	35.2736	42,626	39	42,587	.....	.....	.....	.....	.....	.....
Horse	149	.....	149	518.081	77,245	987	76,258	.....	.....	.....	.....	.....	.....
All other	7	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	633	732	1,364	.....	119,871	1,026	118,845	150	1,547	1,397	117,448	1.8	1.6
Grand total	28,098	7,186	35,283	.....	7,026,463	23,274	7,003,189	314,685	6,237	308,448	7,311,637	112.6	100.0
1911.													
Beef, except veal	3,748	63	3,811	546.414	2,082,174	18,137	2,064,037	.....	.....	.....	.....	.....	.....
Veal	4,596	88	4,684	88.184	413,033	1,044	411,989	.....	.....	.....	.....	.....	.....
Total beef	8,344	151	8,495	.....	2,495,207	19,181	2,476,026	174,146	1,108	173,038	2,649,064	40.5	34.4

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Mutton, including lamb	2,240	509	2,750	48.5012	133,373	111	133,262	488	.....	488	133,750	2.0	1.7
Pork, including lard	18,616	5,794	24,411	187.391	4,574,327	3,427	4,570,900	227,740	3,914	223,826	4,794,726	73.4	62.3
Total beef, mutton, pork	29,200	6,454	35,656	.....	7,202,907	22,719	7,180,188	402,374	5,022	397,352	7,577,540	115.9	98.5
Goat	497	732	1,229	35.2736	43,339	38	43,301	.....	.....	.....	.....	.....	.....
Horse	152	.....	152	518.081	78,743	939	77,804	.....	.....	.....	.....	.....	.....
All other	6	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	655	732	1,387	.....	122,082	977	121,105	110	1,750	1,640	119,465	1.8	1.5
Grand total	29,855	7,186	37,043	.....	7,324,989	23,696	7,301,293	402,484	6,772	395,712	7,697,005	117.7	100.0
1912.													
Beef, except veal	3,641	63	3,704	542.847	2,010,518	17,025	1,993,493	.....	.....	.....	.....	.....	.....
Veal	4,366	88	4,454	88.184	392,763	1,060	391,703	.....	.....	.....	.....	.....	.....
Total beef	8,007	151	8,158	.....	2,403,281	18,085	2,385,196	228,720	939	227,781	2,612,977	39.5	34.1
Mutton, including lamb	2,269	509	2,778	48.5012	134,778	86	134,692	717	.....	717	135,409	2.0	1.8
Pork, including lard	18,217	5,794	24,011	187.391	4,499,543	3,445	4,496,098	280,907	3,308	277,599	4,773,697	72.2	62.4
Total beef, mutton, pork	28,493	6,454	34,947	.....	7,037,602	21,616	7,015,986	510,344	4,247	506,097	7,522,083	113.7	98.3
Goat	475	732	1,207	35.2736	42,554	34	42,520	.....	.....	.....	.....	.....	.....
Horse	179	.....	179	518.081	92,795	1,061	91,734	.....	.....	.....	.....	.....	.....
All other	8	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	662	732	1,394	.....	135,349	1,095	134,254	122	2,061	1,959	132,295	2.0	1.7
Grand total	29,155	7,186	36,341	.....	7,172,951	22,711	7,150,240	510,466	6,328	504,138	7,654,378	115.7	100.0
1913.													
Beef, except veal	3,529	63	3,592	548.948	1,971,779	17,025	1,954,754	.....	.....	.....	.....	.....	.....
Veal	4,068	88	4,176	88.184	368,260	1,060	367,200	.....	.....	.....	.....	.....	.....
Total beef	7,617	151	7,768	.....	2,340,039	18,085	2,321,954	233,548	781	232,767	2,554,721	38.6	33.9
Mutton, including lamb	2,093	509	2,602	48.5012	126,221	86	126,135	1,933	.....	1,933	128,068	1.9	1.7
Pork, including lard	17,872	5,794	23,666	187.391	4,434,832	3,445	4,431,387	288,179	3,108	285,071	4,716,458	71.3	62.7
Total beef, mutton, pork	27,582	6,454	34,036	.....	6,901,092	21,616	6,879,476	523,660	3,889	519,771	7,399,247	111.8	98.3
Goat	470	732	1,202	35.2736	42,387	34	42,353	.....	.....	.....	.....	.....	.....
Horse	163	.....	163	518.081	84,592	1,061	83,531	.....	.....	.....	.....	.....	.....
All other	7	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total goat, horse, etc	640	732	1,372	.....	126,979	1,095	125,884	151	2,101	1,950	123,934	1.9	1.7
Grand total	28,222	7,186	35,408	.....	7,028,071	22,711	7,005,360	523,811	5,990	517,821	7,523,181	113.7	100.0

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TABLE 16.—*Estimated meat production in the United Kingdom.*

[Journal of the Royal Statistical Society, London, Vol. LXXII, year 1909, page 355, by R. H. Hooker.]

Year.	Total of all meat.	Total beef and veal.	Beef.	Veal.	Total mutton and lamb.	Mutton.	Lamb.	Pork.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1890–91...	2,536,764,160	1,192,616,320	1,123,319,680	69,296,640	619,418,240	536,829,440	82,588,800	724,729,600
1891–92...	3,001,118,400	1,435,358,400	1,351,958,720	83,399,680	722,890,560	626,505,600	96,384,960	842,869,440
1892–93...	2,998,186,240	1,671,819,520	1,574,679,680	97,139,840	791,038,080	685,565,440	105,472,640	535,328,640
1893–94...	2,910,445,440	1,687,763,840	1,589,698,880	98,064,960	748,567,680	648,757,760	99,809,920	474,113,920
1894–95...	2,689,559,040	1,461,091,520	1,376,195,520	84,896,000	659,500,800	571,567,360	87,933,440	568,966,720
1895–96...	2,656,776,640	1,361,711,680	1,282,590,400	79,121,280	600,568,640	520,493,120	80,075,520	694,496,320
1896–97...	2,883,216,000	1,430,233,280	1,347,131,520	83,101,760	686,754,880	595,188,160	91,566,720	766,227,840
1897–98...	2,643,161,920	1,399,619,200	1,318,206,000	81,323,200	649,857,600	563,209,920	86,647,680	593,685,120
1898–99...	2,654,930,880	1,394,218,560	1,313,208,960	81,009,600	670,723,200	581,293,440	89,429,760	589,989,120
1899–1900.	2,919,017,920	1,473,528,000	1,387,910,720	85,617,280	740,075,840	641,399,360	98,676,480	705,414,080
1900–1901.	2,822,509,760	1,499,133,440	1,412,028,800	87,104,640	698,707,520	605,545,920	93,161,600	624,668,800
1901–2....	2,819,582,080	1,561,725,760	1,470,983,360	90,742,400	719,290,880	623,385,280	95,905,600	538,565,440
1902–3....	2,738,184,960	1,490,919,360	1,404,291,840	86,627,520	686,022,400	594,552,000	91,470,400	561,243,200
1903–4....	2,789,295,040	1,430,515,520	1,347,395,840	83,119,680	693,096,320	600,682,880	92,413,440	665,683,200
1904–5....	2,893,318,400	1,500,056,320	1,412,897,920	87,158,400	665,132,160	576,448,320	88,683,840	728,129,920
1905–6....	2,785,520,640	1,544,813,760	1,455,054,720	89,759,040	662,007,360	573,740,160	88,267,200	578,699,520
1906–7....	2,781,549,120	1,600,536,000	1,507,537,920	92,998,080	638,052,800	552,979,840	85,072,960	542,960,320
1907–8[1]...	2,835,125,440	1,555,272,320	1,464,904,000	90,144,320	631,182,720	547,025,920	84,156,800	648,603,200

TABLE 17.—*Beef, mutton, and pork as percentages of their total production.*

Country and year.	Percentage of total production of beef, mutton, and pork.			Country and year.	Percentage of total production of beef, mutton, and pork.			Country and year.	Percentage of total production of beef, mutton, and pork.		
	Beef, including veal.	Mutton, including lamb.	Pork.		Beef, including veal.	Mutton, including lamb.	Pork.		Beef, including veal.	Mutton, including lamb.	Pork.
Germany:				United Kingdom:				United Kingdom—Con.			
1904.....	35.9	2.2	61.9	1890–91...	47.0	24.4	28.6	1900–1901.	53.1	24.8	22.1
1905.....	39.2	2.4	58.4	1891–92...	47.8	24.1	28.1	1901–2....	55.4	25.5	19.1
1906.....	39.0	2.2	58.8	1892–93...	55.8	26.4	17.8	1902–3....	54.4	25.1	20.5
1907.....	35.4	2.0	62.6	1893–94...	58.0	25.7	16.3	1903–4....	51.3	24.8	23.9
1908.....	36.7	2.0	61.3	1894–95...	54.3	24.5	21.2				
1909.....	39.6	2.1	58.3					1904–5....	51.8	23.0	25.2
1910.....	37.9	2.1	60.0	1895–96...	51.3	22.6	26.1	1905–6....	55.4	23.8	20.8
1911.....	34.6	1.9	63.5	1896–97...	49.6	23.8	26.6	1906–7....	57.6	22.9	19.5
1912.....	34.2	1.9	63.9	1897–98...	52.9	24.6	22.5	1907–8....	54.8	22.3	22.9
1913.....	33.9	1.8	64.3	1898–99...	52.5	25.3	22.2	United States:			
				1899–1900.	50.5	25.3	24.2	1900.....	46.9	3.6	49.5
								1909.....	48.0	3.6	48.4

[1] The figures are a correct copy of the original and no attempt has been made to correct apparent inconsistencies.

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TABLE 18.—*Percentage of beef, mutton, and pork production exported from the United States.*

[Dressed weight.]

Year.	Total beef, mutton, and pork.			Beef, including veal.		
	Production.	Net exports.		Production.	Net exports.	
		Amount.	Percentage of production.		Amount.	Percentage of production.
	Pounds.	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*	*Per cent.*
1900	16,225,616,000	2,433,860,000	15.0	7,609,700,000	831,500,000	10.9
1909	16,940,477,757	1,490,372,000	8.8	8,138,179,626	486,500,000	6.0

Year.	Mutton, including lamb.			Pork.		
	Production.	Net exports.		Production.	Net exports.	
		Amount.	Percentage of production.		Amount.	Percentage of production.
	Pounds.	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*	*Per cent.*
1900	586,956,000	600,000	0.1	8,028,960,000	1,601,760,000	20.0
1909	603,712,659	1,600,000	.3	8,198,585,472	1,002,272,000	12.2

TABLE 19.—*Ratio of slaughter to stock of animals.*

ANIMALS ON HAND.

Country and year.	Cattle.		Sheep.		Swine.	
	Total.	Cows.	Total.	Ewes.	Total.	Over 3½ months old.
Germany:	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*
1904	19,331,508	10,456,137	7,907,173	.....	18,920,666	.....
1907	20,630,544	10,966,998	7,703,710	4,228,269	22,146,532	.....
1912	20,182,021	.....	5,803,445	.....	21,923,703	.....
1913	20,944,258	.....	5,504,195	.....	25,591,794	.....
United Kingdom (annual average):						
1890–1894	11,128,137	4,026,919	32,131,262	.....	3,794,090	.....
1895–1899	11,039,025	4,010,062	30,795,586	.....	3,989,000	.....
1900–1904	11,458,775	4,115,457	30,141,069	.....	3,798,426	.....
1905–1907	11,665,372	4,267,650	29,432,881	.....	3,716,521	.....
United States:						
1900 (June 1)	67,719,410	28,694,827	61,503,713	31,857,652	62,868,041	.....
1910 (June 1, estimate)	65,500,000	.....	62,937,000	.....	69,241,000	.....
1910 (Apr. 15)	61,803,866	32,649,114	52,447,861	[1] 31,933,797	58,185,676	35,134,097

SLAUGHTER—ANIMALS.

Country and year.	Cattle, including calves.	Calves.	Sheep, including lambs.	Swine.
Germany:	*Number.*	*Number.*	*Number.*	*Number.*
1904	7,787,000	4,369,000	2,897,000	20,999,000
1907	8,107,000	4,466,000	2,775,000	22,485,000
1912	8,158,000	4,454,000	2,778,000	24,011,000
1913	7,768,000	4,176,000	2,602,000	23,666,000
United Kingdom (annual average):				
1890–1894	.....	.....	.....	.....
1895–1899	.....	.....	.....	.....
1900–1904	.....	.....	.....	.....
1905–1907	.....	.....	.....	.....
United States:				
1900 [2]	19,049,000	5,831,000	14,316,000	50,181,000
1909 [2]	20,217,398	6,515,976	14,724,699	53,237,568

[1] Over 3½ months old.

[2] Including net exports of live animals.

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TABLE 19.—*Ratio of slaughter to stock of animals*—Continued.

SLAUGHTER—MEAT (MOSTLY DRESSED).

Country and year.	Beef, including veal.	Veal.	Mutton, including lamb.	Lamb.	Pork.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Germany:					
1904	2,281,400,000	385,307,000	140,508,000	.....	3,935,069,000
1907	2,385,837,000	393,960,000	134,570,000	.....	4,213,533,000
1912	2,403,281,000	392,763,000	134,778,000	.....	4,499,543,000
1913	2,340,039,000	368,260,000	126,221,000	.....	4,434,832,000
United Kingdom (annual average):					
1890–1894	1,489,729,920	86,559,424	708,283,072	94,437,952	629,201,664
1895–1899	1,411,862,144	82,084,624	669,596,032	89,279,232	669,962,496
1900–1904	1,496,470,080	86,950,528	692,449,856	92,326,976	623,658,112
1905–1907	1,566,874,027	90,967,147	643,747,960	85,832,320	590,087,680
United States:					
1900[1]	7,609,700,000	758,030,000	586,956,000	.....	8,028,960,000
1909[1]	8,138,179,626	684,177,480	603,712,659	.....	8,198,585,472

ANIMALS SLAUGHTERED AS A PERCENTAGE OF STOCK ON HAND.

Country and year.	Slaughter of cattle, of total stock of cattle.		Slaughter of cattle, of stock of cows.		Slaughter of calves, of stock of cows.	Slaughter of sheep, including lambs.		Slaughter of swine.	
	Including calves.	Not including calves.	Including calves.	Not including calves.		Of total stock of sheep.	Of stock of ewes.	Of total stock of swine.	Of stock of swine over 3½ months old.
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Germany:									
1904	40.3	17.7	74.5	32.7	41.8	36.6	.....	111.0	.....
1907	39.3	17.6	73.9	33.2	40.7	36.0	65.6	101.5	.....
1912	40.4	18.4	.....	.....	.....	47.9	.....	109.5	.....
1913	37.1	17.2	.....	.....	.....	47.3	.....	92.5	.....
United Kingdom:									
1898–1902 (average)	26.6	18.6	.....	.....	.....	37.9	.....	121.3	.....
United States:									
1900 (June 1)	28.1	19.5	66.4	46.1	20.3	23.3	44.9	79.8	.....
1910 (June 1, estimate)	30.9	20.9	.....	.....	.....	23.4	.....	76.9	.....
1909 (Apr. 15)	32.7	22.2	61.9	42.0	20.0	28.1	46.1	91.5	151.5

MEAT SLAUGHTERED PER HEAD OF STOCK OF ANIMALS ON HAND.

Country and year.	Beef per head of total stock of cattle.		Beef, per head of stock of cows.		Veal per head of stock of cows.	Mutton, per head of total stock of sheep.			Pork, per head.	
	Including veal.	Not including veal.	Including veal.	Not including veal.		Including lamb.	Not including lamb.	Including lamb per head of total stock of ewes.	Of total stock of swine.	Of stock of swine over 3½ months old.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Germany:										
1904	118	98	218	181	37	18	.....	.....	208	.....
1907	116	97	218	182	36	17	.....	32	190	.....
1912	119	100	.....	.....	.....	23	.....	.....	205	.....
1913	112	94	.....	.....	.....	23	.....	.....	173	.....
United Kingdom (annual average):										
1890–1894	134	126	370	348	21	22	19	.....	166	.....
1895–1899	128	120	352	332	20	22	19	.....	168	.....
1900–1904	131	123	364	342	21	23	20	.....	164	.....
1905–1907	134	127	367	346	21	22	19	.....	159	.....
United States:										
1900 (June 1)	112	101	265	239	26	10	.....	18	128	.....
1910 (June 1, est.)	124	114	.....	.....	.....	10	.....	.....	118	.....
1910 (Apr. 15)	132	121	249	228	21	12	.....	19	141	233

[1] Including meat of net live exports.

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TABLE 20.—*Consumption of meat and meat products in specified countries, total and per capita of the population.*

[Mostly dressed weight, except for United States where indicated.]

TOTAL CONSUMPTION.

Country.	Year.	Population.	Total beef, mutton, and pork.[1]	Total beef, including veal.	Mutton, including lamb.	Pork.	Other meat (goat, horse, dog).
			Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Argentina	1899	4,400,000	616,000,000	.....	.....	.....	.....
Austria-Hungary	1890	41,244,811	2,639,667,904	.....	.....	.....	.....
Australia	1902	3,839,000	1,008,121,400	.....	.....	.....	.....
Belgium	1902	6,839,596	478,771,720	.....	.....	.....	.....
Canada	1910	7,023,000	962,151,000	.....	.....	.....	.....
Cuba	1906	1,989,000	246,636,000	.....	.....	.....	.....
Denmark	1902	2,491,000	189,316,000	.....	.....	.....	.....
France	1904	39,190,000	3,096,010,000	1,685,170,000	352,710,000	1,058,130,000	39,190,000
Germany	1913	66,981,000	7,399,247,000	2,554,721,000	128,068,000	4,716,458,000	123,934,000
Greece	1899	2,487,000	169,116,000	.....	.....	.....	.....
Italy	1901	32,965,504	1,532,895,936	.....	.....	.....	.....
Netherlands[2]	1902	5,347,000	374,290,000	.....	.....	.....	.....
New Zealand	1902	807,929	171,684,912	.....	.....	.....	.....
Norway[3]	1902	2,281,000	141,422,000	.....	.....	.....	.....
Poland (Russian)	1899	9,840,000	610,080,000	.....	.....	.....	.....
Portugal	1899	5,394,000	237,336,000	.....	.....	.....	.....
Russia (except Poland)	1899	120,475,000	6,023,750,000	.....	.....	.....	.....
Spain	1890	17,736,000	869,064,000	.....	.....	.....	.....
Sweden	1902	5,198,752	322,322,624	.....	.....	.....	.....
Switzerland	1899	3,263,000	244,725,000	.....	.....	.....	.....
United Kingdom	1906	43,360,331	5,174,397,760	2,643,544,960	1,139,335,680	1,348,625,600	.....
United States:							
Dressed	1909	90,556,521	15,450,105,757	[4]7,651,679,626	602,112,659	7,196,313,472	11,707,673
Dressed and extra edible parts	1909	90,556,521	18,212,127,048	[5]9,050,015,077	632,382,223	8,529,729,748	12,294,684
Total	.....	513,709,444	[6]47,957,111,013	.....	.....	.....	.....

[1] Relatively small quantities of goat, horse, dog, and other meat are possibly included for some countries.
[2] Belgium, 1902, adopted.
[3] Sweden, 1902, adopted.
[4] Includes beef, 6,967,502,146 pounds, and veal, 684,177,480 pounds.
[5] Includes beef, 8,302,687,364 pounds, and veal, 747,327,713 pounds.
[6] Dressed weight.

NOTE.—For Germany and the United Kingdom the figures are a correct copy of the original and no attempt has been made to correct arithmetical inconsistencies.

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TABLE 20.—*Consumption of meat and meat products in specified countries, total and per capita of the population*—Continued.

PER CAPITA CONSUMPTION ADOPTED.

Country.	Year.	Total beef, mutton, and pork.	Total beef, including veal.	Beef.	Veal.	Mutton, including lamb.	Pork.	Other meat.
		Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Argentina	1899	140	.....	.....	.....	.....	.....	.....
Austria-Hungary	1890	64	.....	.....	.....	.....	.....	.....
Australia	1902	262.6	.....	.....	.....	.....	.....	.....
Belgium	1902	70	.....	.....	.....	.....	.....	.....
Canada	1900	109	54	.....	.....	11	44	.....
	1910	137	61	.....	.....	9	67	.....
Cuba	1906	124	.....	.....	.....	.....	.....	.....
Denmark	1902	76	.....	.....	.....	.....	.....	.....
France	1892	77	42	.....	.....	9	26	1
	1904	79	43	.....	.....	9	27	1
Germany	1894	88	.....	.....	.....	.....	.....	.....
	1902	99	.....	.....	.....	.....	.....	.....
	1904	112.7	40.5	.....	.....	2.4	69.8	1.7
	1905	110.7	42.9	.....	.....	2.5	65.3	2.0
	1906	109.7	42.4	.....	.....	2.3	65.0	1.9
	1907	114.8	40.8	.....	.....	2.2	71.8	1.8
	1908	115.6	42.0	.....	.....	2.2	71.4	1.8
	1909	114.7	45.0	.....	.....	2.3	67.4	1.9
	1910	110.8	42.6	.....	.....	2.2	66.0	1.8
	1911	115.9	40.5	.....	.....	2.0	73.4	1.8
	1912	113.7	39.5	.....	.....	2.0	72.2	2.0
	1913	111.8	38.6	.....	.....	1.9	71.3	1.9
Greece	1899	68	.....	.....	.....	.....	.....	.....
Italy	1901	46.5	.....	.....	.....	.....	.....	.....
Netherlands[1]	1902	70	.....	.....	.....	.....	.....	.....
New Zealand	1902	212.5	.....	.....	.....	.....	.....	.....
Norway[2]	1902	62	.....	.....	.....	.....	.....	.....
Poland (Russian)	1899	62	.....	.....	.....	.....	.....	.....
Portugal	1899	44	.....	.....	.....	.....	.....	.....
Russia (except Poland)	1899	50	.....	.....	.....	.....	.....	.....
Spain	1890	49	.....	.....	.....	.....	.....	.....
Sweden	1902	62	.....	.....	.....	.....	.....	.....
Switzerland	1899	75	.....	.....	.....	.....	.....	.....
United Kingdom (annual average):								
1890–91 to 1894–95	1893	112	56	.....	.....	25	31	.....
1895–96 to 1899–1900	1898	120	55	.....	.....	27	38	.....
1900–1901 to 1904–5	1903	121	58	.....	.....	27	36	.....
1905–6 to 1907–8	1906	119	60	.....	.....	26	33	.....
United States:								
Dressed	1900	181.5	89.2	79.2	10.0	7.7	84.6	.....
	1909	170.6	84.5	76.9	7.6	6.6	79.5	.1
Dressed and extra edible parts	1900	215.9	106.7	96.0	10.7	8.1	101.1	.....
	1909	201.1	99.9	91.7	8.2	7.0	94.2	.1
Total dressed, all countries, latest year	.....	93.3	.....	.....	.....	.....	.....	.....

[1] Belgium, 1902, adopted.

[2] Sweden, 1902, adopted.

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TABLE 20.—*Consumption of meat and meat products in specified countries, total and per capita of the population*—Continued.

PER CAPITA CONSUMPTION, BY AUTHORITIES, IN DETAIL.

Country.	Authorities in footnotes.							Royal Statistical Society, 1902.[1]	Ostertag [2] for 1890.[1]	Mulhall, published in 1899.[1]
	Total beef, mutton, and pork.[1]	Total beef, including veal.	Beef.	Veal.	Mutton, including lamb.	Pork.	Other meat.			
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
Argentina										140
Austria-Hungary									64	
Australia								262.6	246	[3] 208
Belgium								70		
Belgium and the Netherlands									69	
Canada										129
1900 [4]	109	54			11	44				
1910 [4]	137	61			9	67				
Cuba	[5] 124									
Denmark								76		
France								80	74	75
1892 [6]	77	42			9	26	1			
1904 [7]	79	43			9	27	1			
Germany	[8] 88							99	70	{ 74 / [9] 66
1904 [10]	112.7	40.5			2.4	69.8	1.7			
1905 [10]	110.7	42.9			2.5	65.3	2.0			
1906 [10]	109.7	42.4			2.3	65.0	1.9			
1907 [10]	114.8	40.8			2.2	71.8	1.8			
1908 [10]	115.6	42.0			2.2	71.4	1.8			
1909 [10]	114.7	45.0			2.3	67.4	1.9			
1910 [10]	110.8	42.6			2.2	66.0	1.8			
1911 [10]	115.9	40.5			2.0	73.4	1.8			
1912 [10]	113.7	39.5			2.0	72.2	2.0			
1913 [10]	111.8	38.6			1.9	71.3	1.9			
Great Britain									105	[11] 115
Greece										68
Italy	[12] 46.5								23	27
Netherlands										48
New Zealand								212.5		
Poland (Russia)										62
Portugal										44
Russia (except Poland)									48	[13] 50
Spain									49	
Sweden								62		
Sweden and Norway									87	74
Switzerland										75
United Kingdom										{ [14] 108 / [15] 93
Annual average [16]—										
1890–91 to 1894–95	112	56			25	31				
1895–96 to 1899–1900	120	55			27	38				
1900–1901 to 1904–5	121	58			27	36				
1905–6 to 1907–8	119	60			26	33				
United States								[17] 150	120	121
Dressed—										
1900 [18]	181.5	89.2	79.2	10.0	7.7	84.6				
1909 [19]	170.6	84.5	76.9	7.6	6.6	79.5	.1			
Dressed and extra edible parts—										
1900 [18]	215.9	106.7	96.0	10.7	8.1	101.1				
1909 [19]	201.1	99.9	91.7	8.2	7.0	94.2	.1			

[1] Relatively small quantities of goat, horse, dog, and other meat are possibly included for some countries.
[2] Quoted by Ostertag as the estimates of the "Statistisches Amt" in England for 1890. Handbook of Meat Inspection, p. 3.
[3] Including New Zealand.
[4] Census and Statistics Office.
[5] Bureau of Crop Estimates, for 1906.
[6] Decennial inquiry.
[7] R. H. Rew.
[8] Lichtenfeld for 1894.
[9] For 1883.
[10] Inspection records and official estimates.
[11] For 1895.
[12] For 1901. Official investigation.
[13] Excluding Poland.
[14] For 1895.
[15] For 1875.
[16] R. H. Hooker.
[17] For 1885. Stated to be on authority of U. S. Department of Agriculture.
[18] Bureau of Crop Estimates.
[19] Census of 1910.

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TABLE 20.—*Consumption of meat and meat products in specified countries, total and per capita of the population*—Continued.

PER CAPITA CONSUMPTION OF DOMESTIC AND FOREIGN MEAT IN THE UNITED KINGDOM.

Average.	Total.			Beef.			Mutton.			Pork.		
	Domestic.	Foreign.	Total.	Domestic.	Foreign.	Total.	Domestic.	Foreign.	Total.	Domestic.	Foreign.	Total.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
1890-91 to 1894-95	74	38	112	39	17	56	19	6	25	16	15	31
1895-96 to 1899-1900	68	52	120	35	20	55	16	11	27	17	21	38
1900-1901 to 1904-5	67	54	121	36	22	58	16	11	27	15	21	36
1905-6 to 1907-8 (3 years)	64	55	119	36	24	60	15	11	26	13	20	33

TABLE 21.—*Percentage of beef, mutton, and pork consumption imported.*

GERMANY.

Year.	Total beef, mutton, and pork.			Beef.		
	Consumption.	Net imports.		Consumption.	Net imports.	
		Amount.	Percentage of consumption.		Amount.	Percentage of consumption.
	Pounds.	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*	*Per cent.*
1904	6,700,794,000	367,248,000	5.5	2,405,854,000	143,842,000	6.0
1905	6,713,312,000	478,001,000	7.1	2,602,961,000	167,106,000	6.4
1906	6,703,542,000	521,337,000	7.8	2,591,079,000	190,700,000	7.4
1907	7,119,027,000	406,879,000	5.7	2,531,731,000	164,169,000	6.5
1908	7,267,453,000	379,478,000	5.2	2,642,648,000	124,816,000	4.7
1909	7,311,308,000	374,579,000	5.1	2,870,186,000	138,240,000	4.8
1910	7,194,189,000	309,845,000	4.3	2,763,094,000	165,254,000	6.0
1911	7,577,540,000	397,352,000	5.2	2,649,064,000	173,038,000	6.5
1912	7,522,083,000	506,097,000	6.7	2,612,977,000	227,781,000	8.7
1913	7,399,247,000	519,771,000	7.0	2,554,721,000	232,767,000	9.1

Year.	Mutton.			Pork.		
	Consumption.	Net imports.		Consumption.	Net imports.	
		Amount.	Percentage of consumption.		Amount.	Percentage of consumption.
	Pounds.	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*	*Per cent.*
1904	140,540,000	141,000	0.1	4,154,400,000	223,265,000	5.4
1905	148,916,000	410,000	.3	3,961,435,000	310,485,000	7.8
1906	140,426,000	572,000	.4	3,972,037,000	330,065,000	8.3
1907	134,992,000	536,000	.4	4,452,304,000	242,174,000	5.4
1908	139,422,000	364,000	.3	4,485,383,000	254,298,000	5.7
1909	149,137,000	545,000	.4	4,291,985,000	235,794,000	5.5
1910	143,263,000	616,000	.4	4,287,832,000	143,975,000	3.4
1911	133,750,000	488,000	.4	4,794,726,000	223,826,000	4.7
1912	135,409,000	717,000	.5	4,773,697,000	277,599,000	5.8
1913	128,068,000	1,933,000	1.5	4,716,458,000	285,071,000	6.0

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TABLE 21.—*Percentage of beef, mutton, and pork consumption imported*—Continued.

UNITED KINGDOM.

Year.	Total beef, mutton, and pork.			Beef.		
	Consumption.	Net imports.		Consumption.	Net imports.	
		Amount.	Percentage of consumption.		Amount.	Percentage of consumption.
	Pounds.	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*	*Per cent.*
1890-91	3,994,474,400	1,457,710,240	36.5	1,899,226,560	706,610,240	37.2
1891-92	4,448,922,240	1,447,803,840	32.5	2,150,982,400	715,624,000	33.3
1892-93	4,380,277,440	1,382,091,200	31.6	2,307,696,160	635,876,640	27.6
1893-94	4,305,501,760	1,395,056,320	32.4	2,285,429,440	597,665,600	26.2
1894-95	4,277,960,960	1,588,401,920	37.1	2,092,753,600	631,662,080	30.2
1895-96	4,457,069,120	1,800,292,480	40.4	2,088,898,560	727,186,880	34.8
1896-97	4,817,397,760	1,934,181,760	40.1	2,224,685,120	794,451,840	35.7
1897-98	4,841,609,920	2,198,448,000	45.4	2,274,870,080	875,250,880	38.5
1898-99	4,827,441,920	2,172,511,040	45.0	2,201,386,880	807,168,320	36.7
1899-1900	5,188,845,760	2,269,827,840	43.7	2,355,792,320	882,264,320	37.5
1900-1901	5,167,323,840	2,344,814,080	45.4	2,431,304,960	932,171,520	38.3
1901-2	5,114,249,280	2,294,667,200	44.9	2,459,338,560	897,612,800	36.5
1902-3	4,837,665,280	2,099,480,320	43.4	2,299,396,880	808,467,520	35.2
1903-4	5,095,881,280	2,306,586,240	45.3	2,401,519,680	971,004,160	40.4
1904-5	5,221,686,400	2,328,368,000	44.6	2,485,611,520	985,555,200	39.7
1905-6	5,231,925,440	2,446,404,800	46.8	2,643,907,840	1,099,094,080	41.6
1906-7	5,174,397,760	2,392,848,640	46.2	2,643,544,960	1,043,008,960	39.5
1907-8	5,247,242,560	2,412,184,320	46.0	2,558,666,880	1,003,394,560	39.2

Year.	Mutton.			Pork.		
	Consumption.	Net imports.		Consumption.	Net imports.	
		Amount.	Per centage of consumption.		Amount.	Percentage of consumption.
	Pounds.	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*	*Per cent.*
1890-91	830,185,440	210,767,200	25.4	1,323,409,920	598,680,320	45.2
1891-92	929,093,760	206,203,200	22.2	1,401,290,240	558,420,800	39.9
1892-93	1,017,982,560	226,944,480	22.3	1,086,507,520	551,178,880	50.7
1893-94	989,387,840	240,820,160	24.3	1,035,890,240	561,776,320	54.2
1894-95	1,001,936,320	342,435,520	34.2	1,185,658,880	616,692,160	52.0
1895-96	1,012,018,560	411,449,920	40.7	1,360,085,440	665,589,120	48.9
1896-97	1,058,733,760	371,978,880	35.1	1,548,982,400	782,754,560	50.5
1897-98	1,079,055,040	429,197,440	39.8	1,485,153,600	891,468,480	60.0
1898-99	1,095,521,280	424,798,080	38.8	1,550,507,840	960,518,720	61.9
1899-1900	1,169,846,720	429,770,880	36.7	1,660,003,520	954,589,440	57.5
1900-1901	1,135,102,080	436,394,560	38.4	1,575,654,080	950,985,280	60.4
1901-2	1,133,536,320	414,245,440	36.5	1,484,304,640	945,739,200	63.7
1902-3	1,144,093,440	458,071,040	40.0	1,345,818,880	784,575,680	58.3
1903-4	1,137,297,280	444,200,960	39.1	1,490,605,760	824,922,560	55.3
1904-5	1,104,797,120	439,664,960	39.8	1,569,928,640	841,798,720	53.6
1905-6	1,111,667,200	449,659,840	40.4	1,418,036,480	839,336,960	59.2
1906-7	1,139,335,680	501,282,880	44.0	1,348,625,600	805,665,280	59.7
1907-8	1,129,853,760	498,671,040	44.1	1,506,554,560	857,951,360	56.9

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TABLE 22.—*Average live and dressed weight of beeves, calves, sheep and lambs, and swine in the United States, 1899, 1904, and 1909.*

[Report on Slaughtering and Meat Packing, Census of 1910, Vol. X, p. 343.]

Description.	1899	1904	1909	Description.	1899	1904	1909
Beeves:				Sheep and lambs:			
Liveweight..pounds..	1,069	1,047	1,019	Live weight..pounds..	84	86	81
Dressed weight..do....	583	569	543	Dressed weight..do....	43	43	41
Dressed as a percentage of live weight, per cent.....	54.5	54.3	53.3	Dressed as a percentage of live weight, per cent.....	51.2	50.0	50.6
Calves:				Swine:			
Live weight..pounds..	141	167	168	Live weight..pounds..	218	213	202
Dressed weight..do....	90	103	105	Dressed weight..do....	170	163	154
Dressed as a percentage of live weight, per cent.....	63.8	61.7	62.5	Dressed as a percentage of live weight, per cent.....	78.0	76.5	76.2

TABLE 23.—*Average dressed weight of cattle, sheep, and swine in specified countries.*

[All weights are in pounds.]

Year.	Cattle.		Sheep.		Swine (pork).
	Beef.	Veal.	Mutton.	Lamb.	
ARGENTINA.					
Frozen and chilled, exported:					
1906	689	.....	[1] 54	.....	.....
1907	697	.....	[1] 56	.....	.....
1908	681	.....	[1] 54	.....	.....
1909	731	.....	[1] 55	.....	.....
1910	758	.....	[1] 59	.....	.....
1911	750	.....	[1] 55	.....	.....
1912	745	.....	[1] 53	.....	.....
1913	767	.....	[1] 65	.....	.....
Buenos Aires city supply (from cold storage):					
1906	593	.....	[1] 37	.....	.....
1907	605	.....	[1] 39	.....	.....
1908	590	.....	[1] 39	.....	.....
1910	584	.....	[1] 39	.....	.....
1911	584	.....	[1] 39	.....	.....
1912	598	.....	[1] 45	.....	.....
AUSTRALIA.					
Queensland (slaughter record):					
1903	577	60	46	.....	82
1904	655	58	50	.....	84
1905	662	62	48	.....	77
1906	661	62	48	.....	79
1907	630	58	45	.....	80
1908	616	58	44	.....	85
1909	609	62	41	.....	83
1910	626	66	43	.....	85
1911	599	69	43	.....	98
1912	580	76	44	.....	84
South Australia (depot):					
1901-2	.....	.....	.....	33	.....
1902-3	.....	.....	.....	32	.....

Year.	Cattle.		Sheep.		Swine (pork).
	Beef.	Veal.	Mutton.	Lamb.	
AUSTRALIA—Continued.					
South Australia (depot)—Con.					
1903-4	.....	.....	.....	35	.....
1904-5	.....	.....	.....	35	.....
1905-6	.....	.....	.....	37	.....
1906-7	.....	.....	.....	34	.....
1907-8	.....	.....	.....	33	.....
1908-9	.....	.....	.....	34	.....
1909-10	.....	.....	.....	34	.....

Year.	Cattle.				Sheep (mutton and lamb).	Swine (pork).
	Beef.			Veal.		
	Oxen.	Steers.	Cows.			
FRANCE (PARIS.)						
1900	692	855	551	165	42	185
1901	674	866	551	159	42	192
1902	670	853	560	165	44	192
1903	750	877	617	172	44	192
1904	745	900	683	163	44	185
1905	900	983	814	172	44	198
1906	842	886	763	194	53	225
1907	886	984	756	196	51	216
1908	891	970	798	198	55	227
1909	919	983	833	216	66	247
1910	922	1,041	811	214	57	251
1911	847	983	714	205	46	264
1912	807	900	661	198	46	242

[1] Mutton and lamb.

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TABLE 23.—*Average dressed weight of cattle, sheep, and swine in specified countries*—Continued.

[All weights are in pounds.]

Year.	Cattle.				Sheep (mutton and lamb).	Swine (pork).
	Beef.			Veal.		
	Oxen.	Steers.	Cows.			
GERMANY (PRUSSIA).						
1906	730	675	540	88	48	198
In slaughterhouses.						
1911	699	661	538	95	50	201 [1] 226
Out of slaughterhouses.						
1911	656	605	508	78	.....	193

Year.	Cattle.		Sheep.		Swine (pork).
	Beef.	Veal.	Mutton and lamb.	Lamb.	
JAPAN.					
1897	453	.....	.....	.....	152
1898	458	.....	.....	.....	159
1899	451	.....	.....	.....	145
1900	440	.....	.....	.....	137
1901	347	.....	.....	.....	115
1902	342	.....	.....	.....	169
1903	352	.....	.....	.....	117
1904	345	.....	.....	.....	136
1905	351	.....	.....	.....	155
1906	350	.....	.....	.....	174
1907	366	.....	.....	.....	186
1908	352	.....	.....	.....	167
1909	356	.....	.....	.....	173
1910	438	.....	.....	.....	.....
1911	391	.....	.....	.....	.....
NEW ZEALAND.					
General average	800	.....	60	36	.....
UNITED STATES.					
Census, slaughtering and meat packing:					
1899	583	90	43	.....	170
1904	569	103	43	.....	163
1909	543	105	41	.....	154

Year.	Cattle.		Sheep.		Swine (pork).
	Beef.	Veal.	Mutton and lamb.	Lamb.	
UNITED STATES—Continued.					
Price Current-Grain Reporter, "In the West," year ending Mar. 1:					
1879	.....	.....	.....	.....	183
1880	.....	.....	.....	.....	176
1881	.....	.....	.....	.....	172
1882	.....	.....	.....	.....	174
1883	.....	.....	.....	.....	175
1884	.....	.....	.....	.....	174
1885	.....	.....	.....	.....	177
1886	.....	.....	.....	.....	175
1887	.....	.....	.....	.....	167
1888	.....	.....	.....	.....	163
1889	.....	.....	.....	.....	172
1890	.....	.....	.....	.....	175
1891	.....	.....	.....	.....	169
1892	.....	.....	.....	.....	165
1893	.....	.....	.....	.....	157
1894	.....	.....	.....	.....	172
1895	.....	.....	.....	.....	163
1896	.....	.....	.....	.....	165
1897	.....	.....	.....	.....	172
1898	.....	.....	.....	.....	167
1899	.....	.....	.....	.....	162
1900	.....	.....	.....	.....	163
1901	.....	.....	.....	.....	161
1902	.....	.....	.....	.....	150
1903	.....	.....	.....	.....	157
1904	.....	.....	.....	.....	160
1905	.....	.....	.....	.....	156
1906	.....	.....	.....	.....	157
1907	.....	.....	.....	.....	157
1908	.....	.....	.....	.....	159
1909	.....	.....	.....	.....	148
1910	.....	.....	.....	.....	148
1911	.....	.....	.....	.....	161
1912	.....	.....	.....	.....	152
1913	.....	.....	.....	.....	153
1914	.....	.....	.....	.....	152
URUGUAY.					
1905	558	.....	50	.....	.....
1906	574	.....	51	.....	.....
1907	577	.....	54	.....	.....
1908	580	.....	49	.....	.....
1909	559	.....	49	.....	.....
1910	558	.....	51	.....	.....

[1] Home.

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TABLE 24.—*Losses of cattle, sheep, and swine in the United States from disease and exposure.*

[From reports to the Bureau of Crop Estimates.]

Year ending Mar. 31—	Cattle.				Sheep.				Lambs, losses from disease and exposure per 1,000 head.	Swine, losses from disease.	
	Per 1,000 head.		Number lost.		Per 1,000 head.		Number lost.			Per 1,000 head.	Number.
	From disease.	From exposure.	From disease.	From exposure.	From disease.	From exposure.	From disease.	From exposure.			
1884	[1] 42.6	.....	[1] 1,788,798	.....	[1] 80.0	.....	[1] 4,288,664	.....	.....	85.5	3,779,652
1885	[1] 41.9	.....	[1] 1,835,139	.....	[1] 78.0	.....	[1] 3,905,253	.....	.....	91.0	4,108,062
1886	[1] 36.5	.....	[1] 1,621,737	.....	[1] 70.0	.....	[1] 3,319,746	.....	.....	127.8	5,892,477
1887	[1] 44.0	.....	[1] 2,086,933	.....	[1] 70.0	.....	[1] 3,119,297	.....	.....	133.8	5,857,555
1888	[1] 29.4	.....	[1] 1,423,475	.....	[1] 46.0	.....	[1] 1,998,737	.....	.....	77.5	3,372,074
1889	[1] 24.0	.....	[1] 1,210,215	.....	[1] 38.0	.....	[1] 1,623,536	.....	.....	61.7	3,105,513
1890	13.0	23.0	722,981	1,204,041	24.0	51.0	1,069,397	2,239,879	.....	76.1	3,925,691
1891	14.3	15.3	754,022	807,751	23.0	17.0	993,847	723,029	.....	83.7	4,237,407
1892	12.8	13.0	693,784	703,668	19.0	14.0	812,758	648,654	.....	54.4	2,850,596
1893	16.6	17.3	872,007	905,621	24.0	20.0	1,126,898	944,305	.....	63.1	2,909,871
1894	19.0	12.5	1,007,946	665,776	20.0	15.0	900,758	645,265	.....	48.6	2,195,877
1895	21.4	20.7	1,089,354	1,053,362	26.0	29.0	1,131,978	1,212,698	.....	92.3	4,074,799
1896	19.3	11.3	932,637	544,805	27.0	21.0	1,047,210	787,169	.....	127.0	5,440,168
1897	19.4	16.0	895,146	747,420	23.0	32.0	858,862	1,175,494	.....	144.0	5,846,008
1898	19.7	13.0	888,194	585,932	26.0	27.0	977,282	1,007,764	.....	92.8	3,691,357
1899	20.3	22.1	893,906	971,270	21.0	35.0	837,909	1,371,047	.....	82.1	3,173,862
1900	19.9	13.7	875,610	601,719	20.0	18.0	852,943	762,304	.....	64.4	2,389,203
1901	22.3	11.5	1,390,507	713,730	24.0	22.0	1,438,393	1,309,692	.....	74.7	4,254,090
1902	21.3	18.2	1,310,102	1,119,416	25.0	31.6	1,524,601	1,962,386	.....	51.5	2,507,726
1903	23.9	23.7	1,475,394	1,460,924	28.0	53.6	1,779,856	3,426,202	.....	58.2	2,732,746
1904	23.6	20.2	1,442,969	1,233,494	26.0	37.7	1,340,980	1,948,588	.....	57.9	2,721,091
1905	20.6	23.3	1,260,059	1,426,968	24.6	30.8	1,109,554	1,389,213	.....	50.8	2,401,796
1906	20.1	14.9	1,347,170	999,825	22.2	37.0	1,124,286	1,873,901	.....	51.1	2,661,210
1907	19.9	13.7	1,446,467	992,196	25.6	35.4	1,360,549	1,882,220	.....	48.9	2,681,166
1908	18.9	12.0	1,347,929	854,634	22.5	22.9	1,227,886	1,250,111	.....	52.4	2,940,350
1909	19.2	14.8	1,367,671	1,051,605	26.6	28.3	1,493,020	1,588,128	.....	51.0	2,761,358
1910	21.0	17.6	1,299,532	1,086,012	27.7	41.1	1,454,689	2,158,097	.....	45.1	2,623,902
1911	19.7	13.3	1,193,720	802,432	25.4	23.0	1,361,718	1,234,160	.....	44.8	2,937,863
1912	21.6	21.5	1,251,551	1,246,030	26.6	46.6	1,393,823	2,440,879	81.0	89.2	5,834,456
1913	20.5	14.1	1,158,586	798,265	24.6	25.1	1,268,140	1,290,935	56.5	110.1	6,738,283
1914	19.8	10.9	1,123,316	614,071	21.7	21.0	1,079,924	1,044,480	49.0	118.9	7,004,756

[1] Losses from all causes.

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries.*

ARGENTINA.

[All prices are in cents per pound except where dollars per head are mentioned.]

Market and year.	Mestizo steers.		Cows.		Sheep.		
	Special freezing.	Good.	Fat mestizas.	Fat criollas.	Wethers, fat frigorífico (Lincoln).	Ewes, Lincoln, fat.	Lambs, special frigoríficos.
Buenos Aires:	*Per head.*	*Per head.*	*Per head.*	*Per head.*	*Per head.*	*Per head.*	*Per head.*
1903	$38.60	$31.20	$21.22	$15.98	$4.46	$2.98	.....
1904	33.45	28.68	19.06	17.24	4.10	2.99	$2.97
1905	36.20	32.15	23.42	18.14	4.24	3.60	3.17
1906	40.57	37.33	27.36	20.54	4.57	4.10	3.08
1907	42.26	38.52	27.44	20.96	4.31	3.99	3.32
1908	43.49	38.57	27.82	19.96	3.71	3.36	2.98
1909	49.10	42.49	26.82	19.84	3.65	3.50	2.69
1910	52.28	45.43	24.20	17.96	3.85	3.98	3.19
1911	54.28	46.98	24.85	18.89	4.07	4.13	3.51
1912	53.41	46.73	31.19	24.45	5.00	4.71	4.65
1913	68.20	58.75	46.28	34.41	5.73	5.87	5.11
1913.							
January	58.15	49.03	35.44	28.65	4.73	4.88	4.35
February	57.30	49.87	35.55	28.65	5.23	4.88	4.54
March	59.96	52.80	39.79	32.90	5.97	5.52	5.04
April	67.91	59.43	44.57	35.02	5.78	5.73	5.49
May	72.58	61.97	44.57	35.44	5.86	5.98	5.48
June	69.51	61.81	44.57	36.08	5.60	6.15	5.31
July	70.57	62.08	56.24	36.08	5.86	6.21	5.39
August	71.31	62.40	55.18	36.08	6.05	6.26	5.41
September	71.10	61.55	55.18	36.08	6.02	6.26	5.41
October	72.80	62.40	50.51	36.08	6.15	6.75	5.43
November	74.55	62.08	49.08	36.08	5.97	6.15	5.31
December	72.16	59.43	44.57	36.08	5.52	5.52	4.16

Market and year.	Monthly mean for year.	Prices of beef carcasses delivered to retail dealers (cents per pound).											
		Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Buenos Aires:													
1911	4.02	3.85	3.75	3.65	3.65	3.75	3.85	3.75	4.35	4.55	4.55	4.25	4.25
1912	5.38	4.95	5.20	5.30	5.00	4.90	4.80	5.30	6.05	5.75	5.85	5.75	5.75
1913	7.04	6.05	6.55	7.15	7.15	7.30	7.25	6.95	7.25	7.15	6.95	7.40	7.30

Market and year.	Steers (fat mestizos).	Cows (fat mestizas).	Wethers (good to superior Lincolns and Rambouillets).	Ewes (good to superior Lincolns and Rambouillets).	Market and year.	Steers (fat mestizos).	Cows (fat mestizas).	Wethers (good to superior Lincolns and Rambouillets).	Ewes (good to superior Lincolns and Rambouillets).
Buenos Aires:	*Per head.*	*Per head.*	*Per head.*	*Per head.*	Buenos Aires—Continued.	*Per head.*	*Per head.*	*Per head.*	*Per head.*
1904	$26.03	$21.51	$3.75	$2.79	1913.				
1905	27.09	22.32	3.73	2.92	March	$47.75	$44.57	$5.15	$4.78
1908	36.40	30.00	3.16	2.32	April	47.75	47.75	5.15	4.78
1909	38.34	28.62	3.42	3.02	May	46.69	48.81	5.41	5.31
1910	36.54	28.88	3.52	3.28	June	43.51	45.63	5.68	5.94
1911	31.89	29.61	3.91	3.73	July	59.72	50.64	5.98	5.18
1912	35.53	33.78	4.62	4.36	August	59.00	48.47	5.86	4.67
1913	52.34	47.62	5.48	5.04	September	60.91	49.71	6.03	5.52
1913.					October	60.15	51.74	6.15	5.69
January	39.26	39.26	5.36	4.88	November	60.57	51.83	5.05	4.63
February	42.45	41.39	5.15	4.78	December	60.27	51.66	4.75	4.33

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

AUSTRALIA.

[Cents per pound.]

Market and year.	Beef.	Veal.	Mutton.	Lamb.	Pork.	Market and year.	Beef.	Veal.	Mutton.	Lamb.	Pork.
Melbourne:						Melbourne—Con.					
1890	4.51	5.83	4.31	1.93	10.65	1902	7.57	4.82	6.08	2.06	11.91
1891	4.05	4.06	3.80	1.75	10.14	1903	6.92	4.82	6.34	2.40	12.93
1892	4.22	4.06	3.80	1.60	9.63	1904	5.67	5.83	7.60	2.71	10.90
1893	3.88	3.55	3.55	1.43	8.36						
1894	3.18	3.04	3.04	1.35	6.59	1905	5.22	4.31	6.08	2.51	8.36
						1906	5.27	4.31	4.82	2.26	8.62
1895	3.31	3.04	2.79	1.36	6.08	1907	6.40	4.31	5.58	2.23	10.14
1896	4.27	3.04	3.04	1.35	7.35	1908	6.89	4.82	5.32	2.24	11.41
1897	5.02	4.06	5.07	1.72	8.87						
1898	5.53	4.31	4.31	1.89	10.14	1909	5.60	4.06	4.06	2.02	12.17
1899	4.66	4.56	3.80	1.82	9.89	1910	4.82	4.06	4.06	1.95	10.65
						1911	4.58	4.06	4.31	2.16	8.87
1900	5.29	5.07	5.58	2.14	8.11	1912	6.13	4.82	6.59	2.43	9.38
1901	6.79	5.32	5.83	2.29	9.63						

AUSTRIA-HUNGARY.

[Cents per pound.]

Market and year.	Cattle.				Swine.	Market and year.	Cattle.				Swine.
	Oxen.	Steers.	Cows.	Calves.			Oxen.	Steers.	Cows.	Calves.	
Budapest:						Budapest—Con.					
1906	6.81	6.45	6.17	.....	10.41	1913.					
1907	6.63	6.31	6.03	5.99	11.69	March	7.55	6.54	6.86	9.58	13.44
1908	6.08	5.16	4.60	7.64	11.42	April	7.46	6.72	6.91	9.67	13.35
1909	6.17	6.34	5.52	7.09	12.25						
						May	7.92	6.95	7.18	10.13	12.98
1910	6.72	6.77	6.26	9.02	14.09	June	7.83	7.18	7.27	9.94	11.97
1911	7.50	7.37	6.91	10.17	15.47	July	7.83	7.00	7.18	8.56	12.71
1912	7.68	7.40	7.07	.....	14.21	August	7.64	6.81	7.18	9.39	12.89
1913	7.57	6.75	6.88	9.92	12.58						
						September	7.37	6.63	6.63	10.41	12.71
1913.						October	7.46	6.45	6.63	11.23	12.25
January	7.60	7.00	6.91	.....	12.34	November	7.41	6.45	6.35	10.04	11.88
February	7.64	7.00	7.00	9.58	12.89	December	7.18	6.26	6.45	10.59	11.51

Market and year.	Live weight.				Veal.	Mutton.	Pork.
	Oxen.	Steers.	Cows.	Lambs.			
Prague (except for veal, mutton, and pork, 1912-1914, at Salzburg):				*Per head.*			
1906	8.20	.....	.....	$2.44	.....	.....	.....
1907	6.63	5.98	5.80	2.33	12.34	9.94	11.97
1908	6.89	6.34	5.62	.....	12.89	9.02	12.15
1909	6.54	5.71	5.52	.....	12.71	11.05	13.26
1910	7.18	7.37	6.81	.....	14.36	10.50	13.63
1911	8.47	8.47	7.18	.....	14.18	10.50	12.89
1912	8.88	8.58	7.44	2.31	13.72	10.14	14.70
1913	8.46	7.47	6.82	2.15	13.19	9.77	15.27
1913.							
January	8.75	7.83	7.00	3.04	13.26	9.58	13.81
February	8.93	7.74	7.09	2.44	12.52	9.58	13.81
March	8.10	7.83	6.91	2.33	15.10	9.76	15.47
April	8.38	8.01	7.27	2.13	13.08	9.76	15.29
May	8.66	8.20	7.37	1.62	13.26	9.94	16.02
June	8.10	7.64	7.09	2.23	13.26	9.94	16.21
July	8.66	7.74	6.81	2.03	13.63	10.31	16.30
August	8.56	7.46	7.00	2.03	13.77	10.50	16.21
September	8.10	7.00	6.45	2.03	13.36	9.94	16.30
October	8.20	7.09	6.68	2.03	13.08	9.21	15.65
November	8.38	6.49	6.26	1.73	11.97	8.93	14.00
December	8.66	6.68	5.98	.....	11.97	.....	14.18

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

AUSTRIA-HUNGARY—Continued.

[Cents per pound.]

Market and year.	Cattle.				Sheep.	Swine.	Beef.		Veal.	Pork.
	Oxen.	Steers.	Cows.	Calves.			Fore quarters.	Hind quarters.		
Vienna:										
1906	7.32	6.81	6.08	10.31	5.52	10.59	11.14	13.08	11.79	13.17
1907	7.14	6.45	6.08	9.76	7.09	9.58	9.39	11.79	11.79	12.34
1908	6.54	5.80	5.52	9.12	6.54	9.94	8.84	11.33	10.87	12.98
1909	6.91	6.17	5.80	10.13	7.09	11.23	9.30	11.42	11.88	13.81
1910	7.46	8.01	7.55	11.79	7.92	12.52	13.08	15.65	14.73	15.65
1911	8.29	8.66	8.33	12.25	8.66	11.23	8.84	16.21	14.27	17.68
1912	9.82	8.75	8.47	12.02	6.02	11.24	14.92	16.48	16.85	16.02
1913	9.76	8.20	8.20	11.15	6.00	11.05	14.56	16.27	16.67	15.37
1913.										
January	10.17	8.35	8.33	9.87	6.15	10.56	14.92	16.85	16.76	14.92
February	10.30	8.48	8.34	11.00	6.48	11.01	14.82	16.94	17.03	15.10
March	10.01	8.25	8.36	11.26	6.22	11.56	14.82	16.57	17.03	15.84
April	9.97	8.57	8.52	12.20	6.49	11.56	14.92	16.57	17.68	15.29
May	9.64	8.58	8.48	12.87	6.53	11.54	14.73	16.48	17.68	16.76
June	9.68	8.57	8.34	11.19	6.40	11.07	14.73	16.39	16.30	15.84
July	9.53	8.23	8.23	10.32	6.41	11.35	14.46	16.02	15.38	15.65
August	9.73	8.20	8.22	11.23	6.18	11.46	14.55	15.93	16.67	15.98
September	9.73	8.03	8.13	11.50	5.50	11.03	14.55	16.02	17.22	15.38
October	9.68	8.11	8.17	11.43	5.61	10.74	14.46	16.11	16.21	14.64
November	9.41	7.61	7.70	10.99	5.09	10.29	14.09	15.75	15.93	14.27
December	9.26	7.47	7.57	9.98	5.00	10.43	13.72	15.65	16.11	14.82

BELGIUM.

[Cents per pound.]

Year.	Ghent.					Liege.				
	Oxen.	Cows and heifers.	Calves.	Sheep.	Swine.	Oxen.	Cows and heifers.	Calves.	Sheep.	Swine.
Live animals:										
1890	7.44	7.18	9.89	7.44	7.53	7.88	6.57	8.75	7.00	7.88
1891	7.35	6.74	9.89	7.79	7.53	7.44	6.57	8.75	5.25	7.88
1892	6.92	6.92	9.54	7.70	8.49	7.00	7.00	7.00	4.81	7.88
1893	6.48	6.48	9.54	7.00	7.88	7.00	6.57	6.57	4.38	8.32
1894	7.00	6.74	9.45	6.30	7.53	7.44	7.00	8.32	7.00	8.75
1895	7.35	6.92	9.98	6.65	6.74	7.44	6.83	7.88	5.25	7.00
1896	6.22	5.78	9.37	6.04	5.87	6.57	5.69	7.44	5.69	6.13
1897	5.95	5.60	9.37	5.69	7.35	7.00	5.25	5.25	6.13	8.32
1898	5.95	5.52	9.37	5.69	7.44	6.13	5.25	4.81	5.25	7.88
1899	6.22	5.60	9.80	6.04	6.83	6.13	5.25	5.69	5.25	7.88
1900	6.57	6.13	9.89	6.04	7.09	7.44	6.13	5.69	6.13	7.88
1901	6.48	6.04	10.24	6.13	8.49	6.57	6.13	5.25	5.25	9.63
1902	6.74	6.39	10.33	6.22	8.67	7.44	6.57	6.57	6.13	9.63
1903	7.18	6.65	10.77	6.39	8.05	8.75	7.44	10.94	7.44	8.75
1904	6.57	5.78	10.42	6.22	7.18	7.00	6.13	10.94	7.88	8.32
1905	6.48	6.04	9.98	6.04	8.23	7.00	6.13	10.94	7.00	9.63
1906	7.88	7.09	11.38	6.92	10.24	7.88	7.00	7.88	7.88	10.51
1907	7.44	6.04	10.77	6.74	8.93	7.88	7.00	7.88	8.32	9.19
1908	7.09	6.57	10.51	6.39	8.14	8.32	7.44	8.75	7.88	8.75
1909	7.00	6.57	10.86	5.78	9.19	7.88	7.00	8.75	6.57	8.75
1910	8.32	8.32	12.43	6.83	10.86	7.44	5.69	10.51	7.00	9.63
1911	7.79	7.35	11.21	5.69	.....	8.32	7.88	10.51	7.44	10.51
1912	9.28	7.97	11.91	6.48	10.42	8.32	7.88	10.51	7.88	10.94

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

BELGIUM—Continued.

[Cents per pound.]

Year.	Ghent.					Liege.				
	Beef of—		Veal.	Mutton.	Pork.	Beef of—		Veal.	Mutton.	Pork.
	Oxen.	Cows and heifers.				Oxen.	Cows and heifers.			
Meat:										
1890	15.76	14.97	18.12	15.58	14.09	15.76	13.13	13.13	14.01	11.38
1891	15.76	15.58	17.86	15.76	13.39	14.01	13.13	13.13	13.13	12.26
1892	15.23	14.44	16.98	15.50	15.23	13.13	13.13	11.38	12.26	12.26
1893	14.79	14.27	14.01	14.97	14.53	13.13	12.26	10.51	8.75	11.82
1894	15.58	15.23	17.07	15.93	14.71	14.01	12.69	14.88	14.01	12.69
1895	16.90	16.55	17.68	16.63	13.57	14.01	12.34	14.01	12.26	11.38
1896	15.67	15.15	16.81	16.28	11.03	13.13	11.38	13.13	13.13	10.51
1897	15.23	14.71	16.46	16.20	12.61	13.13	11.38	11.38	14.01	12.26
1898	14.44	14.01	16.37	15.67	12.43	12.26	11.38	11.38	12.26	11.82
1899	11.03	10.16	13.83	12.34	8.67	12.26	11.38	13.13	12.26	11.82
1900	11.73	11.29	13.66	11.99	9.02	14.01	12.69	15.76	13.13	12.69
1901	11.38	10.86	14.79	11.91	11.21	13.13	12.26	10.51	11.38	12.26
1902	11.91	11.47	14.36	11.99	11.38	14.88	13.13	13.13	13.13	12.26
1903	12.69	12.26	14.88	13.13	10.94	15.32	14.01	15.76	14.88	12.26
1904	11.82	10.94	15.32	12.69	10.07	14.44	14.01	16.63	15.76	12.69
1905	11.73	11.38	14.79	12.61	10.24	14.44	14.01	16.63	14.01	13.57
1906	13.57	12.61	17.51	13.57	12.17	15.32	14.88	15.76	15.76	14.88
1907	13.22	11.64	16.20	13.48	10.68	16.20	14.88	15.76	16.63	13.13
1908	12.78	12.34	16.28	13.13	10.07	15.76	14.88	16.63	15.76	12.26
1909	12.69	12.26	15.76	11.38	11.03	14.88	14.44	16.63	13.13	13.13
1910	14.09	14.01	20.05	13.66	12.61	15.76	13.13	16.63	14.01	14.01
1911	13.83	13.31	18.12	11.91	11.21	16.20	15.32	16.63	14.88	14.88
1912	15.58	14.27	21.19	14.09	9.98	16.20	15.32	16.63	15.76	15.76

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

CANADA.

[Cents per pound.]

Market and year.	Cattle, western prime, Winnipeg.	Butchers' cattle, choice steers, Toronto.	Sheep, export ewes, Toronto.	Hogs, choice selects, Toronto.	Beef, dressed, Toronto.	Veal, dressed, Toronto.	Mutton, dressed, Toronto.	Swine, dressed, Toronto.
Winnipeg or Toronto:								
1890	3.75	4.18	5.50	4.63	.....	.....	.....	.....
1891	3.62	3.96	4.99	4.32	.....	.....	.....	.....
1892	5.35	3.87	4.81	4.96	.....	.....	.....	.....
1893	3.90	4.45	4.93	6.21	.....	.....	.....	.....
1894	2.69	3.96	3.65	4.60	.....	.....	.....	.....
1895	3.19	3.71	3.33	4.28	.....	.....	.....	.....
1896	3.17	3.02	2.92	3.87	.....	.....	.....	.....
1897	3.46	3.39	3.19	5.05	.....	.....	.....	.....
1898	3.77	3.80	3.35	4.87	.....	.....	.....	.....
1899	3.90	3.88	3.44	4.62	.....	.....	.....	.....
1900	3.52	4.23	3.64	5.76	.....	.....	.....	.....
1901	3.85	4.36	3.34	6.87	.....	.....	.....	.....
1902	4.02	4.90	3.58	6.55	.....	.....	.....	.....
1903	3.73	4.47	3.33	5.83	6.50	7.76	7.82	8.06
1904	3.71	4.50	3.45	5.09	6.59	7.57	8.36	7.19
1905	3.54	4.57	3.89	6.22	6.52	8.19	9.46	8.57
1906	3.83	4.52	4.63	6.81	6.77	9.08	10.68	9.66
1907	4.42	4.85	4.71	6.44	7.27	8.92	10.81	9.24
1908	4.06	4.95	4.22	5.95	7.81	8.90	10.52	8.88
1909	4.14	5.64	4.02	7.30	9.36	9.39	9.83	10.53
1910	4.96	6.15	4.74	8.48	11.42	10.14	9.06	11.74
1911	5.10	5.91	4.16	6.62	11.06	9.88	8.44	9.68
1912	5.85	6.76	4.89	7.69	12.90	10.23	9.26	11.06
1913	6.77	6.99	5.52	9.01	12.80	11.59	10.38	13.06
1913.								
January	6.38	6.50	4.75	8.25	11.75	10.25	8.50	11.50
February	6.75	6.50	5.75	8.50	11.50	10.75	9.50	12.38
March	6.88	6.58	6.58	9.25	11.50	10.75	10.00	13.00
April	7.05	6.75	6.75	9.38	12.62	10.75	11.50	13.12
May	7.38	6.75	6.75	9.45	12.50	10.75	11.50	13.25
June	7.62	6.85	6.12	9.62	12.50	12.50	11.50	13.25
July	7.00	6.58	5.00	9.45	12.50	12.50	9.50	13.25
August	5.88	6.50	4.75	9.72	12.50	12.50	10.00	13.50
September	5.75	6.62	4.62	9.45	12.50	12.50	10.00	13.50
October	6.25	7.12	4.62	8.55	13.00	12.75	10.00	13.12
November	6.12	7.50	5.08	8.55	13.50	13.25	10.00	12.50
December	6.50	8.25	5.58	8.52	14.75	13.50	10.50	12.00

DENMARK.

[Cents per pound.]

Market and year.	Beef of oxen and heifers.	Veal.	Pork.	Market and year.	Beef of oxen and heifers.	Veal.	Pork.
Copenhagen:				Copenhagen—Con.			
1898	8.86	9.64	8.51	1913.			
1899	8.45	9.55	7.03	January	11.72	13.13	12.57
1900	9.40	10.13	8.95	February	11.37	12.27	11.92
1901	9.49	10.12	9.74	March	11.90	12.84	12.20
1902	9.61	9.94	9.95	April	12.21	12.81	12.39
1903	9.85	10.48	9.33	May	12.04	13.27	12.95
1904	9.79	9.65	8.15	June	12.09	12.63	12.70
1905	10.16	10.66	9.79	July	11.94	12.60	13.66
1906	11.00	11.61	10.62	August	12.16	12.70	13.40
1907	11.03	11.42	10.00	September	12.16	12.91	13.48
1908	10.01	10.51	8.96	October	11.56	12.87	12.58
1909	9.64	9.98	10.63	November	11.50	13.32	12.23
1910	10.17	10.82	11.67	December	11.27	13.00	11.64
1911	10.86	11.66	10.21				
1912	11.84	12.05	11.39				
1913	11.82	12.86	12.64				

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

FRANCE.

[Cents per pound.]

Market and year.	Beef of—			Veal.	Mutton.	Pork.	Market and year.	Beef of—			Veal.	Mutton.	Pork.
	Steers.	Bulls.	Cows.					Steers.	Bulls.	Cows.			
Paris:							Paris—Con.						
1890	12.56	.....	12.04	15.41	16.46	12.21	1910	13.74	11.91	13.57	17.33	18.12	13.74
1891	12.43	11.16	11.82	14.84	15.98	11.47	1911	14.49	12.91	13.83	18.73	19.26	16.85
1892	11.64	9.28	10.72	13.39	15.01	10.94	1912	14.23	13.00	14.05	17.47	19.48	17.84
1893	10.72	8.89	9.98	13.96	14.40	11.29	1913	13.73	12.20	13.73	19.58	20.33	15.01
1894	12.78	11.03	11.82	15.54	15.41	13.26							
							1913.						
1895	12.52	10.77	12.08	15.45	15.67	11.82	Jan	13.74	12.26	13.35	20.31	20.57	15.93
1896	12.21	10.07	11.95	14.18	15.93	9.19	Feb	13.66	12.17	13.35	19.65	21.05	15.28
1897	10.99	9.45	10.68	13.92	14.97	9.19	Mar	13.66	12.08	13.39	19.52	20.70	14.75
1898	10.59	8.62	10.16	14.49	14.14	11.16	Apr	13.83	12.17	14.09	19.87	20.44	14.88
1899	10.42	8.32	9.45	15.19	14.44	12.08							
							May	13.88	12.26	14.01	20.31	19.04	15.32
1900	10.51	8.45	9.72	14.23	14.66	11.34	June	13.96	12.26	14.14	18.12	18.73	15.67
1901	10.72	8.97	10.16	15.06	15.23	11.03	July	13.74	12.02	13.86	18.23	19.36	15.84
1902	10.94	9.24	10.33	15.36	15.58	12.04	Aug	13.53	11.77	13.57	18.34	20.00	16.02
1903	12.26	10.55	11.38	16.02	17.25	11.91							
1904	12.39	10.68	11.99	15.06	17.16	10.94	Sept	13.53	11.95	13.61	20.27	20.62	14.93
							Oct	13.53	12.17	13.48	20.53	20.62	14.66
1905	12.39	10.42	11.91	15.41	16.81	11.91	Nov	13.74	12.61	13.88	19.96	21.19	13.74
1906	11.38	9.19	10.94	15.76	16.20	13.31	Dec	13.96	12.65	14.05	19.83	21.62	13.09
1907	13.57	10.51	11.69	16.63	18.38	15.23							
1908	13.22	11.47	12.87	17.29	17.86	14.27							
1909	13.31	11.69	13.13	16.28	18.30	12.08							

GERMANY.

[Cents per pound.]

Market and year.	Cattle.	Calves.	Sheep.	Swine.	Beef.	Veal.	Mutton.	Pork.
Berlin:								
1890	.....	.....	.....	.....	12.87	.....	.....	12.49
1891	.....	.....	.....	.....	12.99	.....	11.52	11.03
1892	.....	.....	.....	.....	12.64	.....	10.47	11.88
1893	.....	.....	.....	.....	11.66	.....	9.40	11.77
1894	.....	.....	.....	.....	12.84	.....	11.30	10.99
1895	.....	.....	.....	.....	12.85	.....	11.82	9.73
1896	.....	.....	.....	.....	12.11	.....	11.06	9.31
1897	.....	.....	.....	.....	12.21	.....	11.31	11.34
1898	.....	.....	.....	.....	12.23	.....	11.70	12.02
1899	.....	.....	.....	.....	12.51	.....	11.88	10.23
1900	.....	.....	.....	.....	12.86	.....	12.12	10.31
1901	.....	.....	.....	.....	12.66	.....	12.19	12.09
1902	.....	.....	.....	.....	13.11	.....	13.04	12.83
1903	.....	.....	.....	.....	13.93	.....	14.35	10.76
1904	.....	.....	.....	.....	14.20	.....	13.73	10.58
1905	.....	.....	.....	.....	14.84	.....	15.02	12.83
1906	.....	.....	.....	.....	15.95	.....	16.38	14.44
1907	.....	.....	.....	.....	15.83	.....	16.12	11.91
1908	.....	.....	.....	.....	15.01	.....	15.19	12.56
1909	.....	.....	.....	.....	14.21	.....	15.28	14.38
1910	8.78	11.82	7.58	11.46	15.65	.....	16.00	14.24
1911	9.12	11.96	8.14	9.87	16.59	19.79	16.30	12.33
1912	9.87	12.87	8.81	12.74	17.94	21.43	17.93	15.91
1913	10.25	13.82	9.76	12.64	18.62	23.02	19.68	15.79
1913.								
January	10.09	13.76	9.25	13.99	18.35	22.94	18.94	17.48
February	10.02	13.56	9.32	13.49	18.19	22.60	19.08	16.83
March	9.95	14.03	9.50	13.15	18.09	23.38	19.43	16.42
April	9.96	13.95	9.55	11.99	18.08	23.22	19.54	15.02
May	9.98	14.03	9.72	11.64	18.12	23.38	19.58	14.53
June	10.26	12.78	10.12	11.51	18.62	21.28	20.23	14.36
July	10.58	12.87	9.91	12.93	19.22	21.42	19.83	16.16
August	10.69	13.42	9.72	13.32	19.43	22.36	19.43	16.66
September	10.49	13.87	9.75	12.90	19.09	23.13	19.51	16.13
October	10.29	14.42	10.07	12.77	18.68	24.04	20.16	15.99
November	10.32	14.58	10.18	12.29	18.74	24.31	20.37	15.35
December	10.36	14.52	10.02	11.69	18.82	24.19	20.04	14.61

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

GERMANY—Continued.

[Cents per pound.]

Market and year.	Cattle.	Calves.	Sheep.	Swine.	Beef.	Veal.	Mutton.	Pork.
Breslau:								
1901	.....	.....	.....	.....	11.45	.....	11.00	12.44
1902	.....	.....	.....	.....	12.30	.....	11.21	12.39
1903	.....	.....	.....	.....	11.94	.....	11.77	11.26
1904	.....	.....	.....	.....	11.77	.....	11.45	11.04
1905	.....	.....	.....	.....	13.27	.....	12.29	14.48
1906	.....	.....	.....	.....	12.97	.....	13.24	13.58
1907	.....	.....	.....	.....	13.40	.....	13.63	12.05
1908	.....	.....	.....	.....	12.43	.....	13.90	12.44
1909	.....	.....	.....	.....	12.02	.....	13.01	14.10
1910	8.10	8.46	7.62	11.16	14.29	.....	15.44	14.22
1911	7.79	10.26	7.52	10.10	15.21	17.69	15.71	12.89
1912	7.99	12.22	7.82	12.80	16.01	20.72	16.63	16.41
1913	7.82	12.81	8.64	12.22	15.63	22.09	18.75	15.69
1913.								
January	7.77	12.77	7.92	13.52	15.55	22.00	17.26	17.32
February	7.77	12.91	7.88	13.07	15.55	22.27	17.17	16.73
March	7.82	13.36	8.24	12.56	15.63	23.05	17.87	16.13
April	7.04	12.75	8.46	11.62	14.08	21.96	18.36	14.91
May	7.45	13.31	8.70	11.16	14.84	22.93	18.80	14.29
June	7.54	12.02	8.97	10.83	15.22	20.73	19.44	14.01
July	8.23	11.72	8.30	12.07	16.45	20.23	18.01	15.51
August	8.31	12.84	8.67	13.01	16.63	22.08	18.82	16.66
September	8.02	12.92	9.24	12.41	16.09	22.30	20.09	15.91
October	7.99	13.28	9.28	12.50	15.98	22.89	20.19	16.01
November	7.99	13.42	9.28	12.34	15.98	23.11	20.19	15.82
December	7.83	12.45	8.64	11.58	15.65	21.46	18.78	14.88
Munich:								
1905	.....	10.14	.....	.....	.....	.....	9.11	.....
1906	.....	11.12	.....	.....	.....	.....	9.94	.....
1907	.....	10.55	.....	.....	.....	.....	10.12	.....
1908	.....	10.25	.....	.....	.....	.....	9.51	.....
1909	.....	10.71	.....	.....	.....	.....	9.91	.....
1910	.....	12.06	.....	.....	.....	.....	10.85	.....
1911	9.03	12.73	.....	10.12	.....	14.71	11.96	12.77
1912	10.06	13.48	.....	12.64	.....	15.41	12.70	15.84
1913	10.45	13.41	.....	12.66	.....	15.28	13.94	15.95
1913.								
January	10.62	14.12	.....	13.95	.....	15.89	14.44	17.58
February	10.63	13.98	.....	13.20	.....	15.96	15.20	16.63
March	10.63	14.09	.....	13.12	.....	15.85	15.92	16.33
April	10.75	14.19	.....	12.29	.....	15.98	15.92	15.46
May	10.61	14.55	.....	11.96	.....	16.41	16.30	15.42
June	10.63	13.10	.....	11.91	.....	14.84	15.47	14.79
July	10.47	12.95	.....	12.74	.....	14.73	13.39	15.83
August	10.63	13.31	.....	13.60	.....	15.47	13.44	16.98
September	10.50	13.15	.....	13.10	.....	15.15	13.10	16.66
October	10.28	13.34	.....	12.59	.....	15.46	11.83	15.87
November	9.93	12.12	.....	11.91	.....	13.93	10.63	15.22
December	9.66	11.93	.....	11.61	.....	13.63	11.64	14.61

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

JAPAN.

[Cents per pound.]

Year.	Beef.					Year.	Beef.				
	Osaka.	Tokyo.	Yokohama.	Hiroshima.	Average for Empire.		Osaka.	Tokyo.	Yokohama.	Hiroshima.	Average for Empire.
1903	11.11	8.75	8.99	6.66	8.97	1908	11.71	14.57	11.57	11.72	13.13
1904	8.95	9.79	9.69	8.70	9.38	1909	9.69	10.81	13.51	10.47	11.54
1905	8.76	12.73	12.42	11.85	12.04	1910	9.29	9.75	13.01	8.49	10.57
1906	11.78	12.58	11.34	10.01	12.19	1911	8.84	9.66	13.02	7.88	10.35
1907	10.44	14.17	12.75	10.47	12.64	1912	9.41	11.63	13.27	8.53	10.66

NETHERLANDS.

[Cents per pound.]

Market and year.	Swine.	Beef of—			Veal.	Mutton.	Market and year.	Swine.	Beef of—			Veal.	Mutton.
		Fat cattle.	Oxen.	Steers					Fat cattle.	Oxen.	Steers		
Rotterdam:							Rotterdam—Con.						
1898	6.91	.....	.....	7.30	12.77	7.24	1913.						
1899	6.16	.....	.....	7.19	13.63	7.68	January	10.44	14.80	14.39	13.06	21.70	11.05
1900	7.31	.....	.....	8.26	13.81	9.24	February	10.03	14.54	14.13	12.58	21.66	11.22
1901	8.04	.....	.....	9.00	14.87	8.76	March	10.07	14.73	14.27	12.54	21.70	11.27
1902	8.79	.....	.....	9.63	15.34	9.56	April	9.61	14.54	14.13	12.38	20.40	11.66
1903	7.18	.....	.....	10.33	16.39	10.85	May	9.62	14.41	14.14	12.46	19.10	11.91
1904	7.21	11.57	11.27	9.60	16.28	9.83	June	9.65	14.61	14.29	12.98	17.92	10.89
1905	8.70	11.79	11.40	9.72	15.65	10.28	July	10.14	14.51	14.14	13.16	17.27	11.64
1906	9.10	11.82	11.89	10.18	16.60	10.90	August	10.45	14.36	13.99	12.90	18.17	10.45
1907	8.64	12.73	12.47	11.32	16.66	11.10	September	10.33	14.25	13.82	13.13	19.45	10.47
1908	8.28	12.18	11.82	10.66	16.63	8.76	October	9.98	14.03	13.67	12.58	20.05	10.39
1909	9.15	12.04	11.71	10.30	16.31	8.42	November	9.90	14.23	13.86	12.77	20.98	10.58
1910	10.04	12.51	12.36	10.47	18.69	9.06	December	9.36	14.38	14.15	12.91	20.98	10.58
1911	9.04	13.82	13.46	11.86	19.08	8.66							
1912	10.78	14.43	14.06	12.60	19.46	10.56							
1913	9.96	14.44	14.09	12.79	19.95	11.01							

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

RUSSIA.

Market and year.	Oxen.	Sheep.	Swine.	Beef.	Mutton.	Pork.	Market and year.	Oxen.	Sheep.	Swine.	Beef.	Mutton.	Pork.
Warsaw (Poland):	*Per head.*	*Per head.*	*Per head.*	*Cents per lb.*	*Cents per lb.*	*Cents per lb.*	Odessa:	*Per head.*	*Per head.*	*Per head.*	*Cents per lb.*	*Cents per lb.*	*Cents per lb.*
1902	$36.56	$1.90	$8.68	6.06	5.06	7.49	1902	$38.89	$2.94	$5.90	5.70	5.06	6.35
1903	37.08	1.92	8.90	6.22	5.35	7.70	1903	39.91	2.76	5.39	5.85	5.19	6.35
1904	37.08	1.90	7.98	6.20	4.92	8.20	1904	34.24	2.26	4.76	4.35	3.92	4.92
1905	37.60	2.10	9.98	6.27	5.56	8.63	1905	34.76	2.66	5.64	5.09	4.88	8.06
1906	45.58	2.45	11.56	7.79	6.65	9.65	1906	39.92	3.30	7.65	5.92	5.50	7.13
1907	47.12	2.72	10.30	7.99	6.20	9.55	1907	48.15	3.59	8.45	6.70	6.42	7.42
1908	44.55	2.37	10.46	7.56	6.20	9.63	1908	47.89	3.52	8.02	6.42	6.06	7.20
1909	45.58	2.45	11.84	6.56	6.13	9.55	1909	48.93	3.58	8.06	6.56	6.35	7.27
1910	46.35	2.52	12.10	7.70	6.49	8.63	1910	52.28	4.02	9.14	6.63	6.49	7.99
1911	49.70	2.58	10.56	8.06	6.92	9.13	1911	59.74	3.76	9.68	7.20	6.85	7.56
1912	56.39	2.76	12.16	8.41	7.13	10.55	1912	63.35	4.14	8.65	7.34	6.92	7.34
Moscow:							50 Governments:						
1902	.....	2.32	6.82	5.28	4.63	6.49	1901	28.58	1.92	5.52	4.44	4.14	5.55
1903	.....	2.18	6.70	5.35	4.92	6.63	1902	28.58	1.92	5.52	4.44	4.14	5.55
1904	.....	2.22	6.90	5.21	4.63	6.63	1903	28.58	1.92	5.52	4.44	4.14	5.55
1905	.....	2.34	7.10	6.13	5.63	7.20	1904	28.58	1.92	5.52	4.44	4.14	5.55
1906	.....	2.55	8.91	6.20	5.92	8.06	1905	28.58	1.92	5.52	4.44	4.14	5.55
1907	.....	2.92	9.94	7.27	6.56	8.63	1906	30.64	2.39	6.42	5.15	4.71	6.47
1908	.....	2.92	8.07	7.77	7.06	9.41	1907	34.50	2.70	7.30	5.86	5.38	7.34
1909	.....	2.84	9.18	7.34	6.56	8.91	1908	35.80	2.78	7.25	5.95	5.59	7.27
1910	.....	2.60	9.63	6.85	6.35	8.98	1909	35.02	2.67	7.26	5.82	5.49	7.26
1911	.....	2.84	6.76	6.99	6.56	8.27	1910	36.82	2.86	7.90	6.17	5.82	7.52
1912	.....	3.12	8.84	7.99	7.20	9.20	1911	36.30	2.82	7.57	5.72	5.43	6.83
							1912	39.14	3.06	7.94	6.73	6.43	7.99

UNITED KINGDOM.[1]

[Cents per pound.]

Year.	Beef.		Mutton.		Pork, large and small.	Bacon, Waterford.	Year.	Beef.		Mutton.		Pork, large and small.	Bacon, Waterford.
	Prime.	Middling.	Prime.	Middling.				Prime.	Middling.	Prime.	Middling.		
1890	11.91	9.63	14.95	11.41	10.65	11.22	1902	13.69	11.91	13.94	11.15	12.17	11.41
1891	11.91	10.14	13.43	10.65	9.88	11.41	1903	12.17	10.65	14.70	11.91	11.15	10.86
1892	11.91	9.63	13.43	10.65	12.17	12.31	1904	12.17	10.65	14.95	12.67	9.88	10.32
1893	12.17	9.88	13.43	10.65	12.67	12.31							
1894	11.91	9.38	13.94	10.65	11.15	10.68	1905	11.91	10.14	14.95	12.93	11.66	11.77
							1906	11.91	10.14	15.21	13.43	12.42	11.77
1895	11.91	9.38	14.70	11.15	9.38	9.78	1907	12.42	10.65	15.21	13.69	11.41	11.41
1896	11.41	8.62	13.43	9.88	8.87	9.05	1908	13.18	11.41	14.70	13.18	10.90	11.22
1897	11.91	9.12	13.94	10.39	11.15	10.68	1909	13.18	11.41	13.18	11.66	12.42	12.85
1898	11.66	9.12	13.18	9.38	11.41	10.50							
1899	12.42	10.14	13.69	10.39	10.14	9.23	1910	13.69	12.17	14.70	13.18	13.69	13.58
							1911	12.93	11.41	13.94	12.42	11.66	11.95
1900	12.93	10.65	14.95	11.41	11.15	10.86	1912	14.19	12.42	14.95	13.69	12.67	12.49
1901	12.42	10.65	13.69	11.15	12.42	11.41	1913	13.69	12.42	15.71	14.19	13.94	13.94

[1] By Sir George Paish. In continuation of Mr. A. Sauerbeck's figures.

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

UNITED KINGDOM—Continued.

[Cents per pound.]

Market and year.	Fat cattle, first quality.	Veal calves, first quality.	Fat sheep, first quality.	Fat pigs, porkers.	Beef.				
					English.	Argentine, frozen hind quarter.	Argentine, chilled hind quarter.	Australian, frozen hind quarter.	New Zealand, frozen hind quarter.
England and Wales:									
1905	13.40	16.22	17.07	12.17	10.97	6.52	8.36	6.19	7.06
1906	13.32	16.22	17.58	13.04	10.75	6.95	8.15	6.08	7.28
1907	13.87	16.22	17.90	12.46	11.19	7.39	9.12	7.17	7.71
1908	14.08	16.73	16.57	11.44	11.73	7.71	9.78	7.50	7.82
1909	14.52	16.73	14.54	13.04	11.73	7.28	9.56	7.17	7.28
1910	15.14	17.24	16.38	14.48	12.28	7.71	9.34	7.50	7.50
1911	14.48	17.24	15.37	12.60	11.73	7.50	8.58	7.28	7.50
1912	15.82	17.24	17.40	13.32	12.82	8.15	9.88	7.82	8.15
1913	15.93	19.26	18.59	15.50	12.82	8.36	10.21	7.82	8.26
1913.									
January	15.68	19.26	19.61	14.77	12.71	7.39	8.69	7.06	7.50
February	15.86	19.77	20.12	15.21	12.93	7.50	9.88	7.17	7.71
March	16.18	21.29	20.78	15.64	13.25	7.60	10.21	7.17	7.60
April	16.33	19.77	18.76	15.35	13.58	8.15	10.64	7.71	8.26
May	16.51	19.26	17.90	15.35	13.69	7.82	9.34	7.39	7.71
June	16.37	19.26	17.40	15.06	13.58	8.15	9.56	7.60	7.82
July	16.26	18.25	17.40	15.35	13.25	8.47	11.08	8.04	8.58
August	15.53	17.74	16.89	15.64	12.49	8.26	10.43	7.82	7.93
September	15.46	18.25	17.40	15.64	12.06	8.47	10.21	7.82	8.47
October	15.61	18.25	18.41	15.64	11.95	9.02	10.97	8.58	8.69
November	15.46	18.76	19.61	15.64	12.17	9.56	10.64	8.91	9.12
December	15.72	19.26	20.12	15.93	12.60	9.56	10.75	9.12	9.12

Market and year.	Veal.		Mutton.				Lamb.				Pork.	
	British.	Foreign.	English.	Argentine, frozen.	Australian, frozen.	New Zealand, frozen.	British.	New Zealand, frozen.	Australian, frozen.	Argentine, frozen.	British.	Foreign.
England:												
1905	14.84	13.80	14.88	7.28	6.84	9.23	18.03	11.41	9.99	9.88	12.93	12.06
1906	14.56	14.77	15.42	7.39	6.95	8.69	18.79	10.64	9.12	8.69	13.90	13.04
1907	14.77	14.77	15.42	7.28	6.95	8.91	19.01	11.41	9.88	9.88	13.36	12.93
1908	14.99	14.45	14.99	7.28	6.84	8.69	19.44	11.62	10.10	9.88	12.49	11.62
1909	14.77	13.69	12.93	6.41	5.97	7.28	17.71	9.67	7.82	7.93	13.80	12.93
1910	15.53	15.42	14.34	7.39	6.95	8.36	18.58	11.19	9.88	9.78	15.21	14.56
1911	15.32	15.64	13.80	7.17	6.74	8.15	18.14	10.86	9.02	9.12	13.58	12.38
1912	15.75	16.51	14.88	8.15	7.82	8.91	19.55	12.28	10.75	10.54	13.90	13.58
1913	17.16	17.60	16.08	8.69	8.15	9.34	20.10	12.71	11.51	11.41	16.18	14.88
1913.												
January	17.92	19.01	16.40	9.12	8.36	10.10	24.33	12.28	11.19	11.08	16.08	14.99
February	18.25	18.47	16.84	9.23	8.26	9.78	24.44	13.47	11.30	11.41	16.29	15.42
March	18.36	17.49	16.84	8.36	7.82	9.23	24.88	13.47	11.41	11.73	16.29	15.75
April	17.05	16.18	16.40	8.47	8.15	9.12	23.36	13.80	12.17	12.17	16.08	15.32
May	17.38	17.27	16.40	8.26	8.04	9.12	21.29	14.12	12.49	12.71	15.86	14.99
June	17.16	16.95	15.97	8.69	8.15	9.12	18.68	13.58	12.28	12.28	15.53	14.66
July	16.40	16.29	15.53	9.02	8.26	9.02	16.95	12.82	12.06	11.73	15.53	14.56
August	15.97	17.05	14.88	8.58	8.04	8.58	15.86	12.17	11.62	11.08	15.64	14.77
September	16.29	17.38	14.56	8.69	8.26	8.80	15.42	12.17	10.75	10.86	16.08	14.88
October	16.51	18.03	15.53	8.80	8.26	9.34	15.97	11.51	10.21	10.21	16.40	14.56
November	17.16	18.79	16.29	8.80	8.04	9.99	.....	11.30	10.54	10.54	16.73	14.23
December	17.27	17.82	16.84	8.80	8.58	10.54	.....	12.17	11.84	11.73	17.16	14.56

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

UNITED STATES.

[Cents per pound.]

Market and year.	Animals, Chicago.					Veal.		Lamb.		Pork.	
	Native steers.	Fat cows and heifers.	Sheep.	Lambs.	Swine.	Good carcass, Chicago.	City dressed, New York.	Round dressed lambs, Chicago.	Dressed lamb, New York.	Dressed hogs, Chicago.	Dressed hogs, medium weight, New York.
Chicago or New York:[1]											
1890	.....	.....	.....	.....	.....	.....	9.2	.....	10.5	.....	5.5
1891	.....	.....	.....	.....	.....	.....	9.6	.....	10.1	.....	6.3
1892	.....	.....	.....	.....	.....	.....	9.4	.....	10.2	.....	6.8
1893	4.45	2.70	3.95	4.75	6.60	.....	9.9	.....	9.5	.....	9.5
1894	4.25	2.50	2.80	3.55	5.05	.....	8.6	.....	8.4	.....	7.3
1895	4.50	2.85	3.30	4.55	4.30	.....	8.9	.....	8.2	.....	6.4
1896	4.05	2.65	3.20	4.50	3.50	.....	8.5	.....	9.0	.....	5.3
1897	4.50	3.05	3.85	4.95	3.70	.....	9.6	.....	8.8	.....	5.4
1898	4.65	3.40	4.25	5.35	3.85	.....	9.7	.....	8.9	.....	5.3
1899	5.30	3.55	4.35	5.50	4.05	.....	10.2	.....	8.5	.....	5.6
1900	5.15	4.05	4.55	5.90	5.05	.....	10.0	.....	9.3	.....	6.9
1901	5.25	4.05	3.80	4.80	5.85	.....	9.7	.....	8.9	.....	7.8
1902	6.20	4.70	4.20	5.50	6.85	.....	10.8	.....	9.8	.....	9.0
1903	4.80	3.95	4.00	5.45	6.00	.....	10.4	.....	9.9	.....	8.6
1904	4.95	3.55	4.25	5.60	5.15	9.0	10.0	11.0	10.2	7.5	7.4
1905	5.05	3.65	5.00	6.80	5.25	9.8	10.4	11.9	12.1	7.1	7.5
1906	5.30	3.70	5.20	6.85	6.25	9.9	10.4	12.5	11.6	8.9	8.7
1907	5.80	3.85	5.25	7.05	6.10	10.8	10.9	13.0	11.7	9.6	9.0
1908	6.10	4.10	4.65	6.35	5.70	11.0	10.8	12.8	11.5	8.6	8.1
1909	6.35	4.25	5.00	7.40	7.35	11.9	11.7	13.9	12.5	10.6	10.4
1910	6.80	4.60	5.25	7.55	8.90	13.5	13.6	14.8	13.1	13.1	13.0
1911	6.40	4.30	3.95	5.95	6.70	12.1	12.9	12.0	11.0	11.0	10.0
1912	7.75	5.25	4.60	7.20	7.55	13.8	14.6	13.3	12.6	11.3	9.7
1913	8.25	6.10	5.20	7.70	8.35	16.2	16.5	14.9	13.8	12.6	12.3
1914	8.65	6.55	5.55	8.00	8.30	15.9	16.4	16.0	14.3	13.1	12.2
1913.											
January	7.80	5.50	5.35	8.55	7.45	15.0	16.0	14.5	14.2	12.0	11.2
February	8.25	5.80	5.90	8.50	8.15	16.0	16.5	16.5	13.5	11.8	11.4
March	8.30	6.15	6.40	8.60	8.90	15.5	16.8	15.0	15.5	12.5	12.0
April	8.15	6.25	6.45	8.40	9.05	15.5	16.5	15.5	13.2	12.9	13.8
May	8.00	6.35	5.85	7.40	8.55	14.5	15.0	16.0	15.5	13.0	12.8
June	8.15	6.20	5.05	6.85	8.65	17.0	15.8	14.5	16.0	12.6	12.4
July	8.25	6.00	4.50	7.55	9.05	15.5	14.8	15.0	14.5	12.9	12.5
August	8.30	6.10	4.35	7.40	8.35	16.5	16.8	15.5	12.2	12.6	13.4
September	8.50	6.25	4.30	7.15	8.30	18.0	17.8	15.0	14.0	13.0	12.6
October	8.40	6.15	4.55	7.05	8.20	17.0	16.3	14.0	14.2	13.0	12.8
November	8.25	5.90	4.60	7.25	7.75	17.0	17.0	13.0	12.5	12.5	12.0
December	8.20	5.80	4.95	7.60	7.70	17.0	18.0	13.5	12.0	12.2	11.2
1914.											
January	8.45	6.10	5.50	7.90	8.30	17.0	17.5	14.5	13.0	12.5	11.9
February	8.30	6.35	5.70	7.60	8.60	15.5	16.8	14.0	12.2	13.0	12.1
March	8.35	6.25	5.95	7.65	8.70	16.5	16.8	13.5	13.5	12.8	12.8
April	8.50	6.45	6.25	7.60	8.65	14.5	15.8	14.5	13.8	13.0	12.5
May	8.40	6.90	5.65	8.10	8.45	15.0	13.5	14.5	13.8	13.0	12.4
June	8.60	6.65	5.10	7.95	8.20	16.0	15.0	16.0	17.5	13.0	12.1
July	8.90	6.85	5.40	8.45	8.70	16.5	16.2	17.0	17.2	13.0	12.2
August	9.10	6.90	5.55	8.15	9.00	16.8	16.8	17.5	14.5	13.0	13.4
September	9.35	6.60	5.30	7.80	8.85	16.0	16.8	13.5	14.0	13.8	13.4
October	9.05	6.30	5.30	7.60	7.65	17.5	17.2	13.5	13.0	14.5	12.6
November	8.60	6.05	5.65	8.75	7.50	15.5	15.5	15.5	13.5	13.5	11.2
December	8.35	5.90	5.40	8.30	7.10	15.0	18.0	15.5	16.2	13.5	11.2

[1] Original compilation by Bureau of Crop Estimates.

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TABLE 25.—*Wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

UNITED STATES—Continued.

[Cents per pound.]

Market and year.	Animals, Chicago.								Beef, fresh carcass, good native steers, Chicago.	Beef, fresh native sides, New York.	Mutton, dressed, New York.
	Steers, choice to prime.	Steers, good to choice.	Sheep, wethers.				Hogs, heavy.	Hogs, light.			
			Native.	Good to fancy.	Western	Plain to choice.					
Chicago or New York:[1]											
1890	4.87	4.14	4.53	.....	4.66	.....	3.95	3.93	.....	6.9	9.3
1891	5.89	5.10	4.51	.....	4.57	.....	4.42	4.34	.....	8.2	8.7
1892	5.09	4.50	4.78	.....	4.87	.....	5.16	5.07	.....	7.6	9.1
1893	5.52	4.84	3.88	.....	4.13	.....	6.55	6.58	.....	8.1	8.0
1894	5.16	4.52	2.70	.....	2.98	.....	4.97	4.93	.....	7.5	6.0
1895	5.48	4.93	2.95	.....	3.09	.....	4.28	4.25	.....	7.9	6.2
1896	4.60	4.27	2.93	.....	3.14	.....	3.36	3.56	.....	7.0	6.2
1897	5.23	4.77	3.50	.....	3.77	.....	3.59	3.72	.....	7.7	7.3
1898	5.38	4.88	3.92	.....	4.16	.....	3.81	3.76	.....	7.8	7.4
1899	5.99	5.39	3.88	.....	4.16	.....	4.04	4.07	.....	8.4	7.1
1900	5.78	5.39	4.12	.....	4.52	.....	5.08	5.11	.....	8.0	7.3
1901	6.12	5.59	3.35	.....	3.74	.....	5.96	5.92	.....	7.9	6.8
1902	7.47	6.56	3.78	.....	4.18	.....	6.97	6.74	.....	9.7	7.4
1903	5.57	5.06	3.71	.....	3.88	.....	6.06	6.05	.....	7.8	7.4
1904	5.96	5.19	4.15	.....	4.26	.....	5.16	5.15	8.4	8.2	7.8
1905	5.97	5.22	5.05	.....	5.08	.....	5.29	5.32	8.1	8.0	8.6
1906	6.13	5.36	4.95	.....	5.28	.....	6.24	6.33	8.0	7.8	9.1
1907	6.54	5.81	4.90	5.75	4.88	5.42	6.08	6.22	8.5	8.8	8.8
1908	6.82	6.00	.....	4.95	.....	4.81	5.80	5.63	10.5	9.3	8.6
1909	7.34	6.45	.....	5.43	.....	5.27	7.57	7.36	11.0	9.5	9.0
1910	7.77	7.02	.....	5.54	.....	5.39	8.94	9.01	11.5	10.3	10.0
1911	7.23	6.73	.....	4.28	.....	3.94	6.75	6.73	11.2	9.8	7.5
1912	9.36	8.40	.....	4.93	.....	4.90	7.60	7.55	13.3	12.1	8.4
1913	8.93	8.51	.....	5.35	.....	5.30	8.37	8.45	13.0	12.5	10.2
1914	9.65	9.04	.....	.....	5.83	.....	8.36	8.38	13.6	13.5	10.1
1913.											
January	9.01	8.36	.....	5.71	.....	5.69	7.47	7.45	14.4	11.4	9.0
February	8.91	8.41	.....	6.11	.....	6.10	8.08	8.13	12.8	11.4	10.2
March	8.94	8.56	.....	6.60	.....	6.48	8.87	8.93	12.8	12.0	10.8
April	8.89	8.50	.....	6.59	.....	6.56	8.94	9.00	12.9	13.0	13.2
May	8.66	8.26	.....	5.71	.....	5.71	8.42	8.48	12.9	12.2	11.5
June	8.78	8.48	.....	5.04	.....	4.99	8.63	8.69	12.9	12.4	10.2
July	8.99	8.72	.....	4.88	.....	4.73	9.01	9.18	12.6	12.9	10.4
August	8.89	8.51	.....	4.56	.....	4.41	8.35	8.86	12.5	12.8	9.4
September	9.08	8.66	.....	4.48	.....	4.49	8.42	8.73	12.9	13.0	9.7
October	9.12	8.65	.....	4.75	.....	4.72	8.31	8.36	13.0	13.0	9.5
November	8.96	8.51	.....	4.72	.....	4.61	7.92	7.82	13.0	12.9	9.3
December	8.92	8.44	.....	5.06	.....	5.13	7.87	7.73	13.0	12.8	9.4
1914.											
January	9.22	8.76	.....	.....	5.72	.....	8.40	8.30	13.0	13.2	9.8
February	9.22	8.64	.....	.....	5.76	.....	8.63	8.62	13.0	13.1	10.1
March	9.26	8.66	.....	.....	6.00	.....	8.66	8.66	13.0	12.8	10.5
April	9.28	8.71	.....	.....	6.40	.....	8.72	8.73	13.2	12.8	10.6
May	9.12	8.72	.....	.....	5.89	.....	8.36	8.39	13.2	13.0	10.8
June	9.16	8.80	.....	.....	5.77	.....	8.20	8.20	13.2	13.0	9.8
July	9.68	9.22	.....	.....	5.68	.....	8.77	8.76	13.5	14.1	9.5
August	10.03	9.52	.....	.....	5.68	.....	9.04	9.15	14.2	14.4	9.9
September	10.52	9.73	.....	.....	5.73	.....	8.76	9.02	14.4	14.2	9.6
October	10.45	9.43	.....	.....	5.69	.....	7.81	7.93	14.4	13.6	9.6
November	10.22	9.41	.....	.....	5.87	.....	7.59	7.48	14.4	14.0	11.0
December	9.78	8.91	.....	.....	5.76	.....	7.19	7.13	14.3	13.4	10.0

[1] Bureau of Labor Statistics reports on wholesale prices.

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries.*

[Mean price of 1903–1912=100.0.]

ARGENTINA.

Market and year.	Mestizo steers.		Cows.		Sheep.		
	Special freezing.	Good.	Fat mestizas.	Fat criollas.	Wethers, fat frigorifico (Lincoln).	Ewes, Lincoln, fat	Lambs, special frigorificos.
Buenos Aires:							
1903	87.0	80.4	83.7	82.4	106.2	79.9	.....
1904	75.4	73.9	75.2	88.9	97.6	80.2	90.5
1905	81.6	82.8	92.4	93.5	101.0	96.5	96.6
1906	91.5	96.2	108.0	105.9	108.8	109.9	93.9
1907	95.3	99.3	108.3	108.0	102.6	107.0	101.2
1908	98.0	99.4	109.8	102.9	88.3	90.1	90.9
1909	110.7	109.5	105.8	102.3	86.9	93.8	82.0
1910	117.9	117.1	95.5	92.6	91.7	106.7	97.3
1911	122.4	121.1	98.1	97.4	96.9	110.7	107.0
1912	120.4	120.4	123.1	126.0	119.0	126.3	141.8
1913	153.7	151.4	182.6	177.4	136.4	157.4	155.8
1913.							
January	131.1	126.3	139.9	147.7	112.6	130.8	132.6
February	129.2	128.5	140.3	147.7	124.5	130.8	138.4
March	135.2	136.1	157.0	169.6	142.1	148.0	153.7
April	153.1	153.1	175.9	180.5	137.6	153.6	167.4
May	163.6	159.7	175.9	182.7	139.5	160.3	167.1
June	156.7	159.3	175.9	186.0	133.3	164.9	161.9
July	159.1	160.0	221.9	186.0	139.5	166.5	164.3
August	160.8	160.8	217.8	186.0	144.0	167.8	164.9
September	160.3	158.6	217.8	186.0	143.3	167.8	164.9
October	164.1	160.8	199.3	186.0	146.4	181.0	165.5
November	168.1	160.0	193.7	186.0	142.1	164.9	161.9
December	162.7	153.1	175.9	186.0	131.4	148.0	126.8

AUSTRALIA.

Market and year.	Beef.	Veal.	Mutton.	Lamb.	Pork.	Market and year.	Beef.	Veal.	Mutton.	Lamb.	Pork.
Melbourne:						Melbourne—Continued.					
1890	78.4	128.4	78.7	84.2	103.0	1902	131.7	106.2	111.0	89.9	115.2
1891	70.4	89.4	69.4	76.4	98.0	1903	120.3	106.2	115.8	104.8	125.0
1892	73.4	89.4	69.4	69.8	93.1	1904	98.6	128.4	138.8	118.3	105.4
1893	67.5	78.2	64.8	62.4	80.8	1905	90.8	94.9	111.0	109.6	80.8
1894	55.3	67.0	55.5	58.9	63.7	1906	91.7	94.9	88.0	98.6	83.3
1895	57.6	67.0	50.9	59.4	58.8	1907	111.3	94.9	101.9	97.3	98.0
1896	74.3	67.0	55.5	58.9	71.1	1908	119.8	106.2	97.2	97.8	110.3
1897	87.3	89.4	92.6	75.1	85.8	1909	97.4	89.4	74.1	88.2	117.7
1898	96.2	94.9	78.7	82.5	98.0	1910	83.8	89.4	74.1	85.1	103.0
1899	81.0	100.4	69.4	79.4	95.6	1911	79.7	89.4	78.7	94.3	85.8
1900	92.0	111.7	101.9	93.4	78.4	1912	106.6	106.2	120.3	106.1	90.7
1901	118.1	117.2	106.5	100.0	93.1						

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

[Mean price of 1903–1912=100.0.]

AUSTRIA-HUNGARY.

Market and year.	Cattle.			Swine.	Market and year.	Cattle.			Swine.
	Oxen.	Steers.	Cows.			Oxen.	Steers.	Cows.	
Budapest:					Budapest—Con.				
1906	98.8	100.1	99.8	81.6					
1907	96.2	97.9	97.6	91.6	1913.				
1908	88.2	80.1	74.4	89.5					
1909	89.5	82.9	89.3	96.0	March	109.5	101.5	111.0	105.3
					April	108.2	104.3	111.8	104.6
1910	97.5	105.1	101.3	110.4					
1911	108.8	114.4	111.8	121.2	May	114.9	107.9	116.2	101.7
1912	111.4	114.8	114.4	111.3	June	113.6	111.4	117.6	93.8
1913	109.8	104.7	111.3	98.6	July	113.6	108.6	116.2	99.6
					August	110.8	105.7	116.2	101.0
1913.					September	106.9	102.9	107.3	99.6
					October	108.2	100.1	107.3	96.0
January	110.2	108.6	111.8	96.7	November	107.5	100.1	102.8	93.1
February	110.8	108.6	113.3	101.0	December	104.1	97.1	104.4	90.2

Market and year.	Cattle.				Sheep.	Swine.	Beef.		Veal.	Pork.
	Oxen.	Steers.	Cows.	Calves.			Fore-quarters.	Hind-quarters.		
Vienna:										
1906	92.7	92.5	86.9	95.3	80.5	97.0	98.9	93.2	86.6	90.0
1907	90.4	87.6	86.9	90.2	103.4	87.7	88.4	84.0	86.6	84.3
1908	82.8	78.8	78.9	84.3	95.3	91.0	78.5	80.8	79.9	88.7
1909	87.5	83.8	82.9	93.6	103.4	102.8	82.6	81.4	87.3	94.4
1910	94.4	108.8	107.9	109.0	115.5	114.7	116.2	111.5	108.2	107.0
1911	104.9	117.7	119.0	113.2	126.2	102.8	78.5	115.5	104.8	120.8
1912	124.3	118.9	121.0	111.1	87.8	102.9	132.5	117.5	123.8	109.5
1913	123.5	111.4	117.1	103.0	87.5	101.2	129.3	116.0	122.5	105.1
1913.										
January	128.7	113.5	119.0	91.2	89.7	96.7	132.5	120.1	123.1	102.0
February	130.4	115.2	119.1	101.7	94.5	100.8	131.6	120.7	125.1	103.2
March	126.7	112.1	119.4	104.1	90.7	105.9	131.6	118.1	125.1	108.3
April	126.2	116.4	121.7	112.8	94.6	105.9	132.5	118.1	129.9	104.5
May	122.0	116.6	121.1	118.9	95.2	105.7	130.8	117.5	129.9	114.6
June	122.5	116.4	119.1	103.4	93.3	101.4	130.8	116.8	119.8	108.3
July	120.6	111.8	117.6	95.4	93.4	103.9	128.4	114.2	113.0	107.0
August	123.2	111.4	117.4	103.8	90.1	104.9	129.2	113.5	122.5	108.9
September	123.2	109.1	116.1	106.3	80.2	101.0	129.2	114.2	126.5	105.1
October	122.5	110.2	116.7	105.6	81.8	98.4	128.4	114.8	119.1	100.1
November	119.1	103.4	110.0	101.6	74.2	94.2	125.1	112.3	117.0	97.5
December	117.2	101.5	108.1	92.2	72.9	95.5	121.8	111.5	118.4	101.3

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

[Mean price of 1903–1912=100.0.]

BELGIUM.

Market and year.	Ghent.					Liege.				
	Oxen.	Cows and heifers.	Calves.	Sheep.	Swine.	Oxen.	Cows and heifers.	Calves.	Sheep.	Swine.
Live animals:										
1890	99.2	105.0	89.4	117.2	83.4	100.0	94.4	89.7	93.0	82.9
1891	96.0	98.5	89.7	122.7	83.4	94.4	94.4	89.7	69.7	82.9
1892	92.3	101.2	86.6	121.3	94.0	88.8	100.6	71.7	63.9	82.9
1893	86.4	94.7	86.6	110.3	87.3	88.8	94.4	67.3	58.2	87.6
1894	93.3	98.5	86.6	99.2	83.4	94.4	100.6	85.2	93.0	92.1
1895	98.0	101.2	90.6	104.7	74.6	94.4	98.1	80.7	69.7	73.7
1896	82.9	84.5	85.0	95.1	65.0	83.4	81.8	76.2	75.6	64.5
1897	79.3	81.9	85.0	89.6	81.4	88.8	75.4	53.8	81.4	87.6
1898	79.3	80.7	85.0	89.6	82.4	77.8	75.4	49.3	69.7	82.9
1899	82.9	81.9	88.9	95.1	75.6	77.8	75.4	58.3	69.7	82.9
1900	87.6	89.6	89.7	95.1	78.5	94.4	88.1	58.3	81.4	82.9
1901	86.4	88.3	92.9	96.5	94.0	83.4	88.1	53.8	69.7	101.4
1902	89.9	93.4	93.7	98.0	96.0	94.4	94.4	67.3	81.4	101.4
1903	95.7	97.2	97.7	100.6	89.1	111.0	106.9	112.1	98.8	92.1
1904	87.6	84.5	94.6	98.0	79.5	88.8	88.1	112.1	104.6	87.6
1905	86.4	88.3	90.6	95.1	91.1	88.8	88.1	112.1	93.0	101.4
1906	105.1	103.7	103.3	109.0	113.4	100.0	100.6	80.7	104.6	110.6
1907	99.2	88.3	97.7	106.1	98.9	100.0	100.6	80.7	110.5	96.7
1908	94.5	96.1	95.4	100.6	90.1	105.6	106.9	89.7	104.6	92.1
1909	93.3	96.1	98.5	91.0	101.8	100.0	100.6	89.7	87.3	92.1
1910	110.9	121.6	112.8	107.6	120.3	94.4	81.8	107.7	93.0	101.4
1911	103.9	104.5	101.7	89.6	.....	105.6	113.2	107.7	98.8	110.6
1912	123.7	116.5	108.0	102.1	115.4	105.6	113.2	107.7	104.6	115.2

Market and year.	Ghent.					Liege.				
	Beef of—		Veal.	Mutton.	Pork.	Beef of—		Veal.	Mutton.	Pork.
	Oxen.	Cows and heifers.				Oxen.	Cows and heifers.			
Meat:										
1890	119.4	119.8	106.5	120.2	129.3	102.0	90.6	80.2	93.0	83.3
1891	119.4	124.6	105.0	121.6	122.8	90.7	90.6	80.2	87.2	89.8
1892	115.4	115.5	99.8	119.6	139.7	85.0	90.6	69.5	81.4	89.8
1893	112.0	114.2	82.4	115.5	133.3	85.0	84.6	64.2	58.1	86.5
1894	118.0	121.8	100.4	122.9	135.0	90.7	87.6	90.9	93.0	92.9
1895	128.0	132.4	103.9	128.3	124.5	90.7	85.2	85.6	81.4	83.3
1896	118.7	121.2	98.8	125.6	101.2	85.0	78.5	80.2	87.2	76.9
1897	115.4	117.7	96.8	125.0	115.7	85.0	78.5	69.5	93.0	89.8
1898	109.4	112.1	96.2	120.9	114.0	79.4	78.5	69.5	81.4	96.5
1899	83.6	81.3	81.3	95.2	79.5	79.4	78.5	80.2	81.4	86.5
1900	88.9	90.3	80.3	92.5	82.8	90.7	87.6	96.3	87.2	92.9
1901	86.2	86.9	86.9	91.9	102.8	85.0	84.6	64.2	75.6	89.8
1902	90.2	91.8	84.4	92.5	104.4	96.3	90.6	80.2	87.2	89.8
1903	96.1	98.1	87.5	101.3	100.4	99.2	96.7	96.3	98.8	89.8
1904	89.5	87.5	90.1	97.9	92.4	93.5	96.7	101.6	104.6	92.9
1905	88.9	91.0	86.9	97.3	93.9	93.5	96.7	101.6	93.0	99.3
1906	102.8	100.9	102.9	104.7	111.7	99.1	102.7	96.3	104.6	108.9
1907	100.2	93.1	95.2	104.0	98.0	104.9	102.7	96.3	110.4	96.1
1908	96.8	98.7	95.7	101.3	92.4	102.0	102.7	101.6	104.6	89.8
1909	96.1	98.1	92.7	87.8	101.2	96.3	99.7	101.6	87.2	96.1
1910	106.7	112.1	117.9	105.4	115.7	102.0	90.6	101.6	93.0	102.6
1911	104.8	106.5	106.5	91.9	102.8	104.9	105.7	101.6	98.8	108.9
1912	118.0	114.2	124.6	108.7	91.6	104.9	105.7	101.6	104.6	115.4

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

[Mean price of 1903–1912=100.0.]

CANADA.

Market and year.	Winnipeg cattle, western prime.	Toronto.						
		Butcher's cattle, choice steers.	Sheep, export ewes.	Hogs, choice selects.	Beef, dressed.	Veal, dressed.	Mutton, dressed.	Swine, dressed.
1890	86.6	79.9	131.0	69.7	.....	.....	.....	.....
1891	83.6	75.7	118.8	72.6	.....	.....	.....	.....
1892	123.6	74.0	114.5	75.0	.....	.....	.....	.....
1893	90.1	85.1	117.4	93.5	.....	.....	.....	.....
1894	62.1	75.7	86.9	69.3	.....	.....	.....	.....
1895	73.7	70.9	79.3	64.5	.....	.....	.....	.....
1896	73.2	57.7	69.5	58.3	.....	.....	.....	.....
1897	79.9	64.8	76.0	76.1	.....	.....	.....	.....
1898	87.1	72.7	79.8	73.3	.....	.....	.....	.....
1899	90.1	74.2	81.9	69.6	.....	.....	.....	.....
1900	81.3	80.9	86.7	86.7	.....	.....	.....	.....
1901	88.9	83.4	79.5	103.5	.....	.....	.....	.....
1902	92.8	93.7	85.2	98.6	.....	.....	.....	.....
1903	86.1	85.5	79.3	87.8	75.4	86.1	83.0	85.2
1904	85.7	86.0	82.1	76.7	76.4	84.0	88.7	76.0
1905	81.8	87.4	92.6	93.7	75.6	90.9	100.4	90.6
1906	88.5	86.4	110.2	102.6	78.5	100.8	113.4	102.1
1907	102.1	92.7	112.1	97.0	84.3	99.0	114.8	97.7
1908	93.8	94.6	100.5	89.6	90.6	98.8	111.7	93.9
1909	95.6	107.8	95.7	109.9	108.6	104.2	104.4	111.3
1910	114.5	117.6	112.9	127.7	132.5	112.5	96.2	124.1
1911	117.8	113.0	99.0	99.7	128.3	109.7	89.6	102.3
1912	135.1	129.3	116.4	115.8	149.7	113.5	98.3	116.9
1913	156.4	133.7	131.4	135.7	148.5	128.6	110.2	138.3
1913.								
January	147.3	124.3	113.1	124.2	136.3	113.8	90.2	121.6
February	155.9	124.3	136.9	128.0	133.4	119.3	100.8	130.9
March	158.9	125.8	156.7	139.3	133.4	119.3	106.2	137.4
April	162.8	129.1	160.7	141.3	146.4	119.3	122.1	138.7
May	170.4	129.1	160.7	142.3	145.0	119.3	122.1	140.1
June	176.0	131.0	145.7	144.9	145.0	138.7	122.1	140.1
July	161.7	125.8	119.0	142.3	145.0	138.7	100.8	140.1
August	135.8	124.3	113.1	146.4	145.0	138.7	106.2	142.7
September	132.8	126.6	110.0	142.3	145.0	138.7	106.2	142.7
October	144.3	136.1	110.0	128.8	150.8	141.5	106.2	138.7
November	241.3	143.4	121.0	128.8	156.6	147.1	106.2	132.1
December	150.1	157.7	132.9	128.3	171.1	149.8	111.5	126.8

DENMARK.

Market and year.	Beef of oxen and heifers.	Veal.	Pork.	Market and year.	Beef of oxen and heifers.	Veal.	Pork.
Copenhagen:				Copenhagen—Con.			
1898	84.9	88.6	84.4	1913.			
1899	80.9	87.8	69.7	January	112.3	120.7	124.7
1900	90.0	93.1	88.8	February	108.9	112.8	118.3
1901	90.9	93.0	96.6	March	114.0	118.0	121.0
1902	92.0	91.4	98.7	April	117.0	117.7	122.9
1903	94.3	96.3	92.6	May	115.3	122.0	128.5
1904	93.8	88.7	80.9	June	115.8	116.1	126.0
1905	97.3	98.0	97.1	July	114.4	115.8	135.5
1906	105.4	106.7	105.4	August	116.5	116.7	132.9
1907	105.7	105.0	99.2	September	116.5	118.7	133.7
1908	95.9	96.6	88.9	October	110.7	118.3	124.8
1909	92.3	91.7	105.5	November	110.2	122.4	121.3
1910	97.4	99.4	115.8	December	108.0	119.5	115.5
1911	104.0	107.2	101.3				
1912	113.4	110.8	113.0				
1913	113.2	118.2	125.4				

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

[Mean price of 1908–1912=100.0.]

FRANCE.

Year.	Beef of—			Veal.	Mutton.	Pork.
	Steers.	Bulls.	Cows.			
1890	95.9	.....	96.0	92.8	92.1	88.4
1891	94.9	99.4	94.3	89.4	89.4	83.1
1892	88.9	82.6	85.5	80.7	83.9	79.2
1893	81.8	79.2	79.6	84.1	80.5	81.8
1894	97.6	98.2	94.3	93.6	86.2	96.0
1895	95.6	95.9	96.3	93.1	87.6	85.6
1896	93.2	89.7	95.3	85.4	89.1	66.5
1897	83.9	84.1	85.2	83.9	83.7	66.5
1898	80.8	76.8	81.0	87.3	79.1	80.8
1899	79.5	74.1	75.4	91.5	80.8	87.5
1900	80.2	75.2	77.5	85.7	82.0	82.1
1901	81.8	79.9	81.0	90.7	85.2	79.9
1902	83.5	82.3	82.4	92.5	87.1	87.2
1903	93.6	93.9	90.7	96.5	96.5	86.2
1904	94.6	95.1	95.6	90.7	96.0	79.2
1905	94.6	92.8	95.0	92.8	94.0	86.2
1906	86.9	81.8	87.2	94.9	90.6	96.4
1907	103.6	93.6	93.2	100.2	102.8	110.3
1908	100.9	102.1	102.6	104.2	99.9	103.3
1909	101.6	104.1	104.7	98.1	102.3	87.5
1910	104.9	106.1	108.2	104.4	101.3	99.5
1911	110.6	115.0	110.3	112.8	107.7	122.0
1912	108.6	115.8	112.0	105.2	108.9	129.2
1913	104.8	108.6	109.5	118.0	113.7	108.7
1913.						
January	104.9	109.2	106.5	122.3	115.0	115.4
February	104.3	108.4	106.5	118.4	117.7	110.6
March	104.3	107.6	106.8	117.6	115.8	106.8
April	105.6	108.4	112.4	119.7	114.3	107.7
May	106.0	109.2	111.7	122.3	106.5	110.9
June	106.6	109.2	112.8	109.2	104.8	113.5
July	104.9	107.0	110.5	109.8	108.3	114.7
August	103.3	104.8	108.2	110.5	111.9	116.0
September	103.8	106.4	108.5	122.1	115.3	108.1
October	103.3	108.4	107.5	123.7	115.3	106.2
November	104.9	112.3	110.7	120.2	118.5	99.5
December	106.6	112.6	112.0	119.5	120.9	94.8

GERMANY.

Year.	Berlin.			Breslau.		
	Beef.	Mutton.	Pork.	Beef.	Mutton.	Pork.
1890	83.5	.....	95.4	.....	.....	.....
1891	84.2	73.7	84.3	.....	.....	.....
1892	82.0	67.0	90.8	.....	.....	.....
1893	75.6	60.1	89.9	.....	.....	.....
1894	83.3	72.3	84.0	.....	.....	.....
1895	83.3	75.6	74.3	.....	.....	.....
1896	78.6	70.9	71.1	.....	.....	.....
1897	79.2	72.4	86.6	.....	.....	.....
1898	79.3	74.9	91.8	.....	.....	.....
1899	81.1	76.0	78.2	.....	.....	.....
1900	83.4	77.5	78.8	.....	.....	.....
1901	82.1	78.0	92.4	85.9	80.2	93.9
1902	85.0	83.4	98.0	92.3	81.8	93.5
1903	90.3	91.8	82.2	89.6	85.8	85.0
1904	92.1	87.8	80.8	88.3	83.5	83.3
1905	96.2	96.1	105.7	99.5	89.6	109.3
1906	103.4	104.8	110.3	97.3	96.6	102.5
1907	102.7	103.1	91.0	100.5	99.4	90.9
1908	97.3	97.2	96.0	93.2	101.4	93.9
1909	92.2	97.8	109.9	90.2	94.9	106.4
1910	101.5	102.4	108.8	107.2	112.6	107.3
1911	107.6	104.3	94.2	114.1	114.5	97.3
1912	116.3	114.7	121.5	120.1	121.3	123.8
1913	120.8	125.9	120.6	117.3	136.8	118.4
1913.						
January	119.0	121.2	133.5	116.7	125.9	130.7
February	118.0	122.1	128.6	116.7	125.2	126.6
March	117.3	124.3	125.4	117.3	130.3	121.7
April	117.3	125.0	114.7	105.6	133.9	112.5
May	117.5	125.3	111.0	111.3	137.1	107.8
June	120.8	129.4	109.7	114.2	141.8	105.7
July	124.6	126.9	123.5	123.4	131.4	117.1
August	126.0	124.3	127.3	124.8	137.3	125.7
September	123.8	124.8	123.2	120.7	146.5	120.1
October	121.1	129.0	122.2	119.9	147.3	120.8
November	121.5	130.3	117.3	119.9	147.3	119.4
December	122.0	128.2	111.6	117.4	137.0	112.3

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

[Mean price of 1903–1912=100.0.]

JAPAN.

Year.	Beef.					Year.	Beef.				
	Osaka.	Tokyo.	Yokohama.	Hiroshima.	Average for Empire.		Osaka.	Tokyo.	Yokohama.	Hiroshima.	Average for Empire.
1903.....	111.1	76.5	75.2	70.3	80.4	1908.....	117.1	127.4	96.7	123.6	118.2
1904.....	89.5	85.6	81.0	91.8	84.1	1909.....	96.9	94.5	113.0	110.4	103.5
1905.....	87.6	111.3	103.8	125.0	108.0	1910.....	92.9	85.2	108.8	89.6	94.8
1906.....	117.8	110.0	94.8	105.6	109.3	1911.....	88.4	84.4	108.9	83.1	92.8
1907.....	104.4	123.9	106.6	110.4	113.4	1912.....	94.1	101.7	111.0	90.0	95.5

NETHERLANDS—ROTTERDAM.

Year.	Swine.	Beef of—			Veal.	Mutton.	Year.	Swine.	Beef of—			Veal.	Mutton.
		Fat cattle.	Oxen.	Steers.					Fat cattle.	Oxen.	Steers.		
1898.....	78.4	.....	.....	68.2	74.3	73.6	1913.						
1899.....	69.9	.....	.....	67.2	79.3	78.0	January...	118.5	116.3	115.6	122.1	126.3	112.3
1900.....	83.0	.....	.....	77.2	80.4	93.9	February.	113.8	114.2	113.5	117.6	126.1	114.0
1901.....	91.3	.....	.....	84.1	86.6	89.0	March.....	114.3	115.7	114.6	117.2	126.3	114.5
1902.....	99.8	.....	.....	90.0	89.3	97.2	April.....	109.1	114.2	113.5	115.7	118.7	118.5
1903.....	81.5	.....	.....	96.5	95.4	110.3	May.....	109.2	113.2	113.6	116.4	111.2	121.0
1904.....	81.8	90.9	90.5	89.7	94.8	99.9	June.....	109.5	114.8	114.8	121.3	104.3	110.7
1905.....	98.8	92.6	91.6	90.8	91.1	104.5	July.....	115.1	114.0	113.6	123.0	100.5	118.3
1906.....	103.3	92.9	95.5	95.1	96.6	110.8	August....	118.6	112.8	112.4	120.6	105.8	106.2
1907.....	98.1	100.0	100.2	105.8	97.0	112.8	September	117.3	111.9	111.0	122.7	113.2	106.4
1908.....	94.0	95.7	94.9	99.6	96.8	89.0	October...	113.3	110.2	109.8	117.6	116.7	105.6
1909.....	103.9	94.6	94.1	96.3	94.9	85.6	November	112.4	111.8	111.3	119.3	122.1	107.5
1910.....	114.0	98.3	99.3	97.9	108.8	92.1	December.	106.2	113.0	113.7	120.7	122.1	107.5
1911.....	102.6	108.6	108.1	110.8	111.1	88.0							
1912.....	122.4	113.4	112.9	117.8	113.3	107.3							
1913.....	113.1	113.4	113.2	119.5	116.1	111.9							

RUSSIA.

Market and year.	Oxen.	Sheep.	Swine.	Beef.	Mutton.	Pork.	Market and year.	Oxen.	Sheep.	Swine.	Beef.	Mutton.	Pork.
Warsaw (Poland):							Odessa:						
1902....	81.8	79.8	82.0	84.4	82.1	82.1	1902....	82.9	87.5	78.1	91.8	86.3	89.2
1903....	83.0	80.7	84.1	86.6	86.9	84.4	1903....	85.1	82.1	71.4	94.2	88.6	89.2
1904....	83.0	79.8	75.4	86.4	79.9	89.9	1904....	73.0	67.3	63.0	70.0	66.9	69.1
1905....	84.1	83.2	94.3	87.3	90.3	94.6	1905....	74.1	79.2	74.7	82.0	83.3	113.2
1906....	102.0	102.9	109.3	108.5	108.0	105.8	1906....	85.1	98.2	101.3	95.3	93.9	100.1
1907....	105.4	114.3	97.4	117.3	100.6	104.7	1907....	102.6	106.8	111.9	107.9	109.6	104.2
1908....	99.7	99.6	98.9	105.3	100.6	105.6	1908....	102.1	104.8	106.2	103.4	103.4	101.1
1909....	102.0	102.9	111.9	77.4	99.5	104.7	1909....	104.3	106.5	107.0	105.6	108.4	102.1
1910....	103.7	105.9	111.4	107.2	105.4	94.6	1910....	111.4	119.6	121.1	106.8	110.8	112.2
1911....	111.2	108.4	99.8	112.3	112.3	100.1	1911....	127.3	111.9	128.2	115.9	116.9	106.2
1912....	126.2	116.0	114.9	117.1	115.7	115.7	1912....	135.0	123.2	114.6	118.2	118.1	103.1
Moscow:							50 Governments:						
1902....	.....	87.5	83.2	78.7	75.4	79.2	1901....						
1903....	.....	82.3	81.7	79.7	80.1	81.0	1902....						
1904....	.....	83.8	84.1	77.6	75.4	81.0	1903....	85.6	76.5	80.9	81.2	80.7	82.5
1905....	.....	88.3	86.6	91.4	91.7	87.9	1904....						
1906....	.....	96.2	108.7	92.4	96.4	98.4	1905....						
1907....	.....	110.2	121.2	108.3	106.8	105.4	1906....	91.7	95.2	94.1	94.1	91.8	96.1
1908....	.....	110.2	98.4	115.8	115.0	114.9	1907....	103.3	107.6	107.0	107.1	104.9	109.1
1909....	.....	107.2	112.0	109.4	106.8	108.8	1908....	107.2	110.8	106.3	108.8	109.0	108.0
1910....	.....	98.1	117.4	102.1	103.4	109.6	1909....	104.9	106.4	106.5	106.4	107.0	107.9
1911....	.....	107.2	82.4	104.2	106.8	101.0	1910....	110.2	113.9	115.8	112.8	113.5	111.7
1912....	.....	117.7	107.8	119.1	117.3	112.3	1911....	108.7	112.4	111 0.	104.6	105.8	101.5
							1912....	117.2	122.7	116.4	123.0	125.3	118.7

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

[Mean price of 1903–1912=100.0.]

UNITED KINGDOM.

Year.	Beef.		Mutton.		Pork, large and small.	Bacon, Waterford.	Year.	Beef.		Mutton.		Pork, large and small.	Bacon, Waterford.
	Prime.	Middling.	Prime.	Middling.				Prime.	Middling.	Prime.	Middling.		
1890	93.2	86.8	102.0	88.6	90.3	94.9	1905	93.2	91.4	102.0	100.4	98.9	99.6
1891	93.2	91.4	91.7	82.7	83.8	96.5	1906	93.2	91.4	103.8	104.3	105.3	99.6
1892	93.2	86.8	91.7	82.7	103.2	104.1	1907	97.2	95.9	103.8	106.3	96.8	96.5
1893	95.2	89.0	91.7	82.7	107.5	104.1	1908	103.1	102.8	100.3	102.3	92.5	94.9
1894	93.2	84.5	95.2	82.7	94.6	90.4	1909	103.1	102.8	90.0	96.5	105.3	108.7
1895	93.2	84.5	100.3	86.6	79.6	82.7	1910	107.1	109.6	100.3	102.3	116.1	114.9
1896	89.3	77.7	91.7	76.7	75.2	76.6	1911	101.2	102.8	95.2	96.4	98.9	101.1
1897	93.2	82.2	95.2	80.7	94.6	90.4	1912	111.0	111.9	102.0	106.3	107.5	105.7
1898	91.2	82.2	90.0	72.8	96.8	88.8	1913	107.1	111.9	107.2	110.2	118.2	117.9
1899	97.2	91.4	93.4	80.7	86.0	78.1							
1900	101.2	95.9	102.0	88.6	94.6	91.9							
1901	97.2	95.9	93.4	86.6	105.3	96.5							
1902	107.1	107.3	95.2	86.6	103.2	96.5							
1903	95.2	95.9	100.3	92.5	94.6	91.9							
1904	95.2	95.9	102.0	98.4	83.8	87.3							

Market and year.	Fat cattle, first quality.	Veal calves, first quality.	Fat sheep, first quality.	Fat pigs, porkers.	Beef.				
					English.	Argentine, frozen hindquarters.	Argentine, chilled hindquarters.	Australian, frozen hindquarters.	New Zealand, frozen hindquarters.
England and Wales:									
1905	93.5	97.0	102.8	94.9	94.2	88.1	91.9	87.3	93.6
1906	93.0	97.0	105.9	101.7	92.3	93.9	89.6	85.8	96.6
1907	96.8	97.0	107.8	97.2	96.1	99.9	100.2	101.1	102.3
1908	98.3	100.0	99.8	89.2	100.7	104.2	107.5	105.8	103.7
1909	101.3	100.0	87.6	101.7	100.7	98.4	105.1	101.1	96.6
1910	105.7	103.0	98.7	112.9	105.4	104.2	102.6	105.8	99.5
1911	101.0	103.0	92.6	98.3	100.7	101.4	94.3	102.7	99.5
1912	110.4	103.0	104.8	103.9	110.0	110.1	108.6	110.3	108.1
1913	111.2	115.1	112.0	120.9	110.0	113.0	112.2	110.3	109.5
1913.									
January	109.4	115.1	118.1	115.2	109.1	99.9	95.5	99.6	99.5
February	110.7	118.2	121.2	118.6	111.0	101.4	108.6	101.1	102.3
March	112.9	127.3	125.2	122.0	113.7	102.7	112.2	101.1	100.8
April	114.0	118.2	113.0	119.7	116.6	110.1	116.9	108.7	109.5
May	115.2	115.1	107.8	119.7	117.5	105.7	102.6	104.2	102.3
June	114.2	115.1	104.8	117.5	116.6	110.1	105.1	107.2	103.7
July	113.5	109.1	104.8	119.7	113.7	114.5	121.8	113.4	113.8
August	108.4	106.0	101.7	122.0	107.2	111.6	114.6	110.3	105.2
September	107.9	109.1	104.8	122.0	103.5	114.5	112.2	110.3	112.3
October	108.9	109.1	110.9	122.0	102.6	121.9	120.5	121.0	115.3
November	107.9	121.1	118.1	122.0	104.5	129.2	116.9	125.7	121.0
December	109.7	115.1	121.2	124.3	108.2	129.2	118.1	128.6	121.0

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

[Mean price of 1903–1912=100.0.]

UNITED KINGDOM—Continued.

Market and year.	Veal.		Mutton.				Lamb.				Pork.	
	British.	Foreign.	English.	Argentine, frozen.	Australian, frozen.	New Zealand, frozen.	British.	New Zealand, frozen.	Australian, frozen.	Argentine, frozen.	British.	Foreign.
England:												
1905	94.1	90.9	100.9	97.7	97.4	107.1	95.8	100.9	102.0	102.2	92.8	92.0
1906	95.5	97.3	104.6	99.2	99.0	100.8	99.8	94.1	93.2	89.8	99.8	99.5
1907	96.9	97.3	104.6	97.7	99.0	103.4	101.0	100.9	101.0	102.2	95.9	98.6
1908	98.4	95.2	101.6	97.7	97.4	100.8	103.3	102.7	103.2	102.2	89.7	88.6
1909	96.9	90.2	87.7	86.0	85.0	84.5	94.1	85.5	79.9	81.9	99.1	98.6
1910	101.9	101.6	97.2	99.2	99.0	97.0	98.7	98.9	101.0	101.0	109.2	111.1
1911	100.5	103.0	93.6	96.2	96.0	94.5	96.4	96.0	92.1	94.2	97.5	94.4
1912	103.3	108.8	100.9	109.4	111.4	103.4	103.9	108.5	109.8	108.9	99.8	103.6
1913	112.6	115.9	109.0	116.6	116.1	108.4	106.8	112.4	117.6	117.9	116.2	113.5
1913.												
January	117.6	125.2	111.2	122.4	119.1	117.2	129.3	108.6	114.3	114.5	115.4	114.3
February	119.8	121.7	114.2	123.9	117.7	113.5	129.9	119.1	115.4	117.9	116.9	117.7
March	120.5	115.2	114.2	112.2	111.4	107.1	132.2	119.1	116.5	121.2	116.9	120.1
April	111.9	106.7	111.2	113.7	116.1	105.8	124.1	122.0	124.3	125.7	115.4	116.9
May	114.0	113.8	111.2	110.9	114.5	105.8	113.1	124.8	127.6	131.3	113.9	114.3
June	112.6	111.7	108.3	116.6	116.1	105.8	99.3	120.1	125.3	126.8	111.5	111.8
July	107.6	107.3	105.3	121.1	117.7	104.6	90.1	113.4	123.2	121.2	111.5	111.1
August	104.8	112.3	100.9	115.2	114.5	99.5	84.3	107.6	118.7	114.5	112.3	112.7
September	106.9	114.5	98.7	116.6	117.7	102.1	82.0	107.6	109.8	112.2	115.4	113.5
October	108.3	118.8	105.3	118.1	117.7	108.4	84.9	101.8	104.3	105.5	117.7	111.1
November	112.6	123.8	110.4	118.1	114.5	115.9	.....	99.9	107.7	108.9	120.1	108.5
December	113.3	117.5	114.2	118.1	122.2	122.3	.....	107.6	120.9	121.2	123.2	111.1

By Sir George Paish. In continuation of Mr. A. Sauerbeck's figures; mean of 1867–1877=100.

Year.	Beef.		Mutton.		Pork, large and small, average.	Bacon, Waterford.	Year.	Beef.		Mutton.		Pork, large and small, average.	Bacon, Waterford.
	Prime.	Middling.	Prime.	Middling.				Prime.	Middling.	Prime.	Middling.		
1890	80	76	94	82	81	84	1902	92	94	87	80	92	85
1891	80	80	84	76	75	85	1903	81	84	92	85	85	81
1892	80	76	84	76	92	92	1904	81	84	94	91	75	77
1893	81	78	84	76	96	92	1905	80	80	94	93	88	88
1894	80	74	87	76	85	80	1906	80	80	95	96	94	88
1895	80	74	92	80	71	73	1907	83	84	95	98	87	85
1896	76	68	84	71	67	68	1908	88	90	92	95	83	84
1897	80	72	87	75	85	80	1909	88	90	83	84	94	96
1898	78	72	84	67	87	78	1910	92	96	92	95	104	101
1899	83	80	86	75	77	69	1911	87	90	87	89	88	89
1900	86	84	94	82	85	81	1912	95	98	94	98	96	93
1901	83	84	86	80	94	85	1913	92	98	99	102	105	104

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

[Mean price of 1903–1912=100.0.]

UNITED STATES.

Market and year.	Animals, Chicago.					Veal.		Lamb.		Pork.	
	Native steers.	Fat cows and heifers.	Sheep.	Lambs.	Swine.	Good carcass, Chicago.	City dressed, New York.	Round dressed lambs, Chicago.	Dressed lamb, New York.	Dressed hogs, Chicago.	Dressed hogs, medium weight, New York.
Chicago or New York:[1]											
1890	.....	.....	.....	.....	.....	.....	79.3	.....	90.5	.....	59.8
1891	.....	.....	.....	.....	.....	.....	82.8	.....	87.1	.....	68.5
1892	.....	.....	.....	.....	.....	.....	81.0	.....	87.9	.....	73.9
1893	75.0	65.5	83.7	71.8	101.5	.....	85.3	.....	81.9	.....	103.3
1894	71.7	60.7	59.3	53.6	77.7	.....	74.1	.....	72.4	.....	79.3
1895	75.9	69.2	69.9	68.7	66.2	.....	76.7	.....	70.7	.....	69.6
1896	68.3	64.3	67.8	68.0	53.8	.....	73.3	.....	77.6	.....	57.6
1897	75.9	74.0	81.6	74.8	56.9	.....	82.8	.....	75.9	.....	58.7
1898	78.4	82.5	90.0	80.8	59.2	.....	83.6	.....	76.7	.....	57.6
1899	89.4	86.2	92.2	83.1	62.3	.....	87.9	.....	73.3	.....	60.9
1900	86.8	98.3	96.4	89.1	77.7	.....	86.2	.....	80.2	.....	75.0
1901	88.5	98.3	80.5	72.5	90.0	.....	83.6	.....	76.7	.....	84.8
1902	104.6	114.1	89.0	83.1	105.4	.....	93.1	.....	84.5	.....	97.8
1903	80.9	95.9	84.7	82.3	92.3	.....	89.7	.....	85.3	.....	93.5
1904	83.5	86.2	90.0	84.6	79.2	75.6	86.2	84.6	87.9	75.0	80.4
1905	85.2	88.6	105.9	102.7	80.8	82.4	89.7	91.5	104.3	71.0	81.5
1906	89.4	89.8	110.2	103.5	96.2	83.2	89.7	96.2	100.0	89.0	94.6
1907	97.8	93.4	111.2	106.5	93.8	90.8	94.0	100.0	100.9	96.0	97.8
1908	102.9	99.5	98.5	95.9	87.7	92.4	93.1	98.5	99.1	86.0	88.0
1909	107.1	103.2	105.9	111.8	113.1	100.0	100.9	106.9	107.8	106.0	113.0
1910	114.7	111.7	111.2	114.0	136.9	113.4	117.2	113.8	112.9	131.0	141.3
1911	107.9	104.4	83.7	89.9	103.1	108.4	111.2	92.3	94.8	110.0	108.7
1912	130.7	127.4	97.5	108.8	116.2	116.0	125.9	102.3	108.6	113.0	105.4
1913	139.1	148.1	110.2	116.3	128.5	136.2	142.2	114.6	119.0	126.0	133.7
1914	145.9	159.0	117.6	120.8	127.7	133.6	141.4	115.4	123.3	131.0	132.6
1913.											
January	131.5	133.5	113.3	129.2	114.6	126.0	137.9	111.5	122.4	120.0	121.7
February	139.1	140.8	125.0	128.4	125.4	134.5	142.2	126.9	116.4	118.0	123.9
March	140.0	149.3	135.6	129.9	136.9	130.3	144.8	115.4	133.6	125.0	130.4
April	137.4	151.7	136.7	126.9	139.2	130.3	142.2	119.2	113.8	129.0	150.0
May	134.9	154.1	123.9	111.8	131.5	121.8	129.3	123.1	133.6	130.0	139.1
June	137.4	150.5	107.0	103.5	133.1	142.9	136.2	111.5	137.9	126.0	134.8
July	139.1	145.6	95.3	114.0	139.2	130.3	127.6	115.4	125.0	129.0	135.9
August	140.0	148.1	92.2	111.8	128.5	138.7	144.8	119.2	105.2	126.0	145.7
September	143.3	151.7	91.1	108.0	127.7	151.3	153.4	115.4	120.7	130.0	137.0
October	141.7	149.3	96.4	106.5	126.2	142.9	140.5	107.7	122.4	130.0	139.1
November	139.1	143.2	97.5	109.5	119.2	142.9	146.6	100.0	107.8	125.0	130.4
December	138.3	140.8	104.9	114.8	118.5	142.9	155.2	103.8	103.4	122.2	121.7
1914.											
January	142.5	148.1	116.5	119.3	127.7	142.9	150.9	111.5	112.1	125.0	129.3
February	140.0	154.1	120.8	114.8	132.3	130.3	144.8	107.7	105.2	130.0	131.5
March	140.8	151.7	126.1	115.6	133.8	138.7	144.8	103.8	116.4	128.0	139.1
April	143.3	156.6	132.4	114.8	133.1	121.8	136.2	111.5	119.0	130.0	135.9
May	141.7	167.5	119.7	122.4	130.0	126.1	116.4	111.5	119.0	130.0	134.8
June	145.0	161.4	108.1	120.1	126.2	134.5	129.3	123.1	150.9	130.0	131.5
July	150.1	166.3	114.4	127.6	133.8	138.7	139.7	130.8	148.3	130.0	132.6
August	153.5	167.5	117.6	123.1	138.5	141.2	144.8	134.6	125.0	130.0	145.7
September	157.7	160.2	112.3	117.8	136.2	134.5	144.8	103.8	120.7	138.0	145.7
October	152.6	152.9	112.3	114.8	117.7	147.1	148.3	103.8	112.1	145.0	137.0
November	145.0	146.8	119.7	132.2	115.4	130.3	133.6	119.2	116.4	135.0	122.8
December	140.8	143.2	114.4	125.4	109.2	126.1	155.2	119.2	139.7	135.0	121.7

[1] Compiled from original compilation by Bureau of Corporations

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified counties*—Continued.

[Mean price of 1903–1912=100.0.]

UNITED STATES—Continued.

Market and year.	Animals, Chicago.								Beef, fresh carcass, good native steers, Chicago.	Beef, fresh native sides, New York.	Mutton, dressed, New York.
	Steers, choice to prime.	Steers, good to choice.	Sheep, wethers.				Hogs, heavy.	Hogs, light.			
			Native.	Good to fancy.	Western.	Plain to choice.					
Chicago or New York: [1]											
1890	70.9	67.5	102.5	.....	103.1	.....	60.4	60.1	.....	75.0	109.5
1891	85.7	83.2	102.0	.....	101.0	.....	67.5	66.4	.....	89.2	101.7
1892	74.1	73.4	108.2	.....	107.6	.....	78.7	77.5	.....	83.0	107.3
1893	80.4	79.0	87.8	.....	91.1	.....	100.0	100.6	.....	88.6	94.2
1894	75.1	73.9	61.0	.....	65.9	.....	75.9	75.5	.....	81.5	71.0
1895	79.9	80.5	66.8	.....	68.4	.....	65.4	65.1	.....	86.3	72.7
1896	66.9	69.7	66.3	.....	69.3	.....	51.3	54.5	.....	76.1	73.4
1897	76.1	77.9	79.2	.....	83.2	.....	54.9	57.0	.....	83.8	85.5
1898	78.3	79.8	88.8	.....	92.0	.....	58.1	57.5	.....	85.1	86.7
1899	87.2	87.9	87.8	.....	91.9	.....	61.7	62.3	.....	91.0	83.5
1900	84.2	88.0	93.3	.....	99.8	.....	77.6	78.3	.....	87.6	85.3
1901	89.2	91.3	75.9	.....	82.7	.....	91.0	90.6	.....	85.8	79.2
1902	108.8	107.0	85.5	.....	92.3	.....	106.5	103.1	.....	105.8	86.6
1903	81.1	82.6	83.9	.....	85.6	.....	92.5	92.7	.....	85.5	87.3
1904	86.8	84.8	93.8	.....	94.1	.....	78.7	78.8	80.8	89.2	91.3
1905	86.9	85.2	114.4	.....	112.2	.....	80.8	81.5	77.9	87.4	100.8
1906	89.2	87.4	112.0	.....	116.6	.....	95.2	96.8	76.9	85.0	106.8
1907	95.3	94.9	110.8	.....	107.9	.....	92.9	95.1	81.7	96.4	102.7
1908	99.2	97.9	.....	95.5	.....	95.7	88.5	86.3	101.0	101.8	101.3
1909	106.9	105.3	.....	104.8	.....	104.9	115.6	112.7	105.8	103.4	105.5
1910	113.2	114.5	.....	107.0	.....	107.3	136.6	137.9	110.6	111.9	118.0
1911	105.3	109.8	.....	82.6	.....	78.4	103.0	103.0	107.7	107.1	88.2
1912	136.3	137.2	.....	95.1	.....	97.6	116.0	115.6	127.9	132.2	98.5
1913	130.0	138.9	.....	103.1	.....	105.5	127.8	129.4	125.0	136.5	120.3
1913.											
January	131.2	136.4	.....	110.1	.....	113.2	114.1	114.0	138.5	124.7	105.7
February	129.7	137.2	.....	117.9	.....	121.4	123.5	124.5	123.1	124.0	119.6
March	130.1	139.7	.....	127.3	.....	129.1	135.4	136.7	123.1	130.8	126.9
April	129.5	138.7	.....	127.0	.....	130.7	136.5	137.8	124.0	141.7	155.5
May	126.0	134.8	.....	110.2	.....	113.7	128.5	129.7	124.0	133.5	135.0
June	127.8	138.5	.....	97.2	.....	99.3	131.8	133.1	124.0	135.5	120.3
July	130.8	142.3	.....	94.1	.....	94.1	137.7	140.6	121.2	140.1	121.5
August	121.6	138.9	.....	88.0	.....	87.7	127.5	135.7	120.2	139.0	110.1
September	132.1	141.4	.....	86.3	.....	89.5	128.6	133.6	124.0	141.7	113.8
October	132.8	141.2	.....	91.7	.....	94.1	127.0	127.9	125.0	141.7	111.5
November	130.4	138.9	.....	91.2	.....	91.7	121.0	119.8	125.0	140.4	109.3
December	129.9	137.9	.....	97.7	.....	102.1	120.2	118.3	125.0	140.1	110.4

[1] Computed from Bureau of Labor Statistics reports on wholesale prices.

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TABLE 26.—*Relative wholesale prices of live meat animals and fresh meats in prominent markets in specified countries*—Continued.

CANADA, FRANCE, GERMANY, UNITED KINGDOM, AND UNITED STATES.

[By Mr. R. H. Hooker. Mean of 1890–1899=100.]

Year.	Beef.					Pork.				
	Canada (steers, choice).	France (La Villette).	Germany (Berlin cattle).	United Kingdom (carcass middling).	United States (steers, good to choice).	Canada.	France.	Germany.	United Kingdom.	United States.
1890	109.3	105.0	103.0	101	87.4	100.2	100.0	112.8	105	89.3
1891	103.6	106.0	104.0	107	107.7	90.8	100.7	99.6	106	103.7
1892	101.3	101.8	101.2	101	95.0	94.8	100.7	107.2	115	116.6
1893	116.4	101.1	93.3	104	102.2	113.3	101.4	106.2	115	154.7
1894	103.6	114.4	102.8	99	95.6	104.1	120.1	99.2	100	111.8
1895	97.0	103.7	102.9	99	104.2	94.5	115.3	87.8	91	96.3
1896	78.9	95.4	97.0	91	90.2	84.6	76.3	84.0	84	73.1
1897	88.7	93.5	97.7	96	100.8	101.7	83.3	102.3	100	79.9
1898	99.4	88.4	97.9	96	103.2	109.6	97.2	108.5	98	89.4
1899	100.1	91.0	100.2	107	113.7	105.9	104.8	92.4	86	85.8
1900	110.5	89.7	102.9	112	113.9	114.3	97.9	93.1	101	111.5
1901	115.3	92.9	101.4	112	118.1	136.3	96.5	109.1	106	132.3
1902	128.1	87.8	104.9	125	138.5	137.5	100.7	115.8	106	159.3
1903	116.8	87.8	111.5	112	106.9	135.1	88.2	97.2	101	142.6
1904	117.5	87.2	113.7	112	109.7	122.0	84.7	95.5	96	115.1
1905	119.7	85.2	118.8	107	110.2	134.4	92.4	124.8	110	119.0
1906	118.1	80.8	127.7	107	113.1	153.0	103.5	130.4	110	139.9
1907	126.9	91.6	126.7	112	122.8	141.0	116.7	107.5	106	140.7
1908	129.5	94.1	120.1	120	126.7	137.5	109.0	113.3	105	133.1
1909	147.5	99.2	113.7	120	136.3	146.0	95.1	129.8	120	173.4
1910	160.9	94.8	125.3	128	148.2	179.7	102.8	124.8	127	197.2

TABLE 27.—*Corn, oats, barley, and hay: Average yield per acre and per capita in specified countries.*

Country and year.	Average yield per acre.				Average production per capita.			
	Corn.	Oats.	Barley.	Hay.	Corn.	Oats.	Barley.	Hay.
Argentina:	*Bush.*	*Bush.*	*Bush.*	*Tons.*	*Bush.*	*Bush.*	*Bush.*	*Tons.*
1888								
1896	28.7				22.3			
1908	20.2	48.4			22.0	5.5		
1913	20.8				25.1			
Australia:								
1890	29.7	22.3	17.8	1.32	2.8	1.9	0.7	0.4
1895	27.3	12.9	10.6	.87	2.5	1.3	.3	.3
1900	28.1	26.4	19.1	1.36	2.6	1.6	.5	.5
1905	27.3	23.1	21.5	1.46	2.1	2.7	.5	.6
1910	32.4	23.4	21.2	1.58	3.0	3.6	.5	.8
1912	27.4	19.0	22.0	1.38	1.9	3.7	.9	1.0
Austria:								
1890	21.4	24.9	20.6		.8	4.8	2.4	
1900	18.7	25.2	20.2	1.3	.6	4.5	2.4	.4
1902	16.4	27.7	24.6	1.2	.5	4.7	2.8	.3
1910	21.8	27.9	23.9	1.4	.6	4.4	2.3	.4
Hungary (including Croatia and Slavonia):								
1884	19.7	23.2	19.0	1.1	5.5	3.5	2.9	.4
1895	26.5	29.6	21.4	1.2	9.0	4.2	3.1	.6
1904	12.1	25.0	19.4	.8	3.6	3.4	2.6	.4
1909	26.0	33.3	24.6	1.4	8.9	4.7	3.6	.6
1911	22.7	32.8	26.3	1.4	7.7	4.5	3.6	.6
British South Africa:								
1904					2.1	.5	.2	
1911					4.4	1.1	.2	
Canada:								
1891	54.9	21.1	19.8	1.3	2.2	17.3	3.6	1.6
1901	71.7	28.2	25.5	1.2	4.8	28.2	4.1	1.5
1908	62.4	31.5	26.8	1.4	3.4	37.6	7.0	1.7
1913	60.3	38.8	30.0	1.3	2.2	52.2	6.2	1.4

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TABLE 27.—*Corn, oats, barley, and hay: Average yield per acre and per capita in specified countries*—Continued.

Country and year.	Average yield per acre.				Average production per capita.			
	Corn.	Oats.	Barley.	Hay.	Corn.	Oats.	Barley.	Hay.
Denmark:	*Bush.*	*Bush.*	*Bush.*	*Tons.*	*Bush.*	*Bush.*	*Bush.*	*Tons.*
1893	.....	25.4	.....	.....	.....	12.3	8.2	0.4
1898	.....	38.2	41.2	.....	.....	17.5	9.2	.9
1903	.....	38.5	33.6	.....	.....	16.3	9.3	.7
1909	.....	42.7	37.4	.....	.....	15.7	8.0	.8
1912	.....	40.1	38.2	.....	.....	15.1	8.1	.8
France:								
1890	17.4	32.6	23.0	1.5	0.6	7.9	1.3	.5
1895	18.3	31.2	22.6	1.8	.7	7.9	1.3	.5
1900	16.8	29.3	22.6	1.4	.6	7.3	1.1	.4
1905	19.6	32.5	24.1	1.5	.6	7.8	1.1	.5
1910	19.6	34.0	24.1	1.6	.6	8.4	1.1	.5
1913	21.0	36.3	25.5	.....	.5	9.0	1.2	.....
Germany:								
1892	.....	33.2	26.6	1.3	.....	6.5	2.2	.4
1897	.....	39.9	29.1	1.9	.....	7.4	2.2	.5
1900	.....	48.0	33.4	1.7	.....	8.7	2.5	.5
1904	.....	46.2	33.7	1.6	.....	8.0	2.3	.4
1907	.....	58.3	38.2	1.9	.....	10.2	2.6	.4
1912	.....	54.1	40.7	.....	.....	8.9	2.4	.5
New Zealand:								
1891	45.2	29.6	23.9	.....	.4	16.2	1.2	.....
1895–6	.....	34.7	30.2	.....	.....	18.2	1.5	.....
1899–1900	39.6	42.3	34.0	.....	.9	22.3	2.2	.....
1904–5	50.1	43.8	39.4	.....	.6	17.5	1.3	.....
1909–10	45.0	37.8	32.4	.....	.6	14.4	1.3	.....
Russia, European, including Poland:								
1890	.....	15.8	11.2	.....	.3	6.9	1.9	.....
1895	13.8	19.7	13.6	.....	.3	7.5	2.5	.....
1900	10.5	20.0	11.5	.....	.3	7.4	2.1	.....
64 Governments: 1905	9.5	20.2	14.3	.....	.3	6.8	2.7	.....
63 Governments:								
1910	21.3	22.5	16.3	.6	.6	7.0	3.3	.3
1913	.....	.....	.....	.....	.....	.....	.....	.....
Russia, Asiatic, including Trans-Caucasia:								
1910	16.2	18.9	12.6	.5	1.0	3.8	1.3	.5
1911	13.6	14.5	11.5	.4	.5	3.1	1.2	.4
United Kingdom:								
1890	.....	42.8	36.3	[1] 1.7	.....	4.7	2.2	[1] 1.3
1895	.....	39.9	33.1	[1] 1.4	.....	4.6	2.0	[1] 1.2
1900	.....	41.2	32.7	[1] 1.7	.....	4.1	1.7	[1] 1.3
1905	.....	41.6	35.9	[1] 1.6	.....	4.0	1.6	[1] 1.2
1910	.....	44.3	34.3	[1] 1.8	.....	4.0	1.4	[1] 1.3
1913	.....	43.0	35.1	[1] 1.7	.....	3.7	1.5	[1] 1.2
United States:								
1839	.....	.....	.....	.....	.....	.....	.....	.....
1849	.....	.....	.....	.....	25.5	6.3	.2	.6
1859	.....	.....	.....	.....	26.7	5.5	.5	.6
1869	.....	.....	.....	.....	19.7	7.3	.8	.7
1879	28.1	25.3	22.0	1.15	35.0	8.1	.9	.7
1889	29.4	28.6	24.3	1.26	33.7	12.9	1.2	1.1
1899	28.1	31.9	26.8	1.09	35.1	12.4	1.6	.8
1909	25.9	28.6	22.5	1.35	27.7	11.0	1.9	.7
1913	23.1	29.2	23.8	1.31	24.9	11.4	1.8	.7
1914	25.8	29.7	25.8	1.43	27.2	11.6	2.0	.7

[1] From permanent grass.

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TABLE 28.—*Prices of corn, oats, barley, and hay in specified countries.*

[As far as available, prices are quoted here for each country and year mentioned in Table 27, which shows average yields per acre and per capita.]

CORN (MAIZE).

Country and year.	Price per bushel.	Description.
Argentina:	*Cents.*	
1891	63.7	Official prices (average).
1895	38.5	Do.
1908	62.0	Do.
1912	55.2	Do.
Australia:		
1890	93.3	Official average prices at Sydney market.
1895	66.9	Do.
1900	73.0	Do.
1902	117.6	Official average wholesale prices at Sydney market.
1905	78.6	Do.
1910	71.5	Do.
1911	73.0	Do.
1912	113.6	Do.
Austria-Hungary:		
Austria—		
1910	80.4	Official average prices in Austria.
Hungary, including Croatia and Slavonia—		
1884	54.2–69.1	Official range of prices at the exchange in Budapest.
1895	59.9	Official average prices at the exchange in Budapest.
1904	64.3	Do.
1909	77.6	Do.
1911	76.7	Do.
British South Africa:		
1904	[1] 81.8	Official average market prices at Cape.
1909	74.9–95.4	Range of farmers' sale price at Cape.
Canada:		
1891	70.31	No. 3 yellow, price at Toronto, Ontario.
1901	49.56	Do.
Canada—Con.	*Cents.*	
1908	76.08	No. 3 yellow, price at Toronto, Ontario.
1913	66.30	Do.
France:		
1890	86.5	Average official prices.
1895	75.4	Do.
1900	75.7	Do.
1905	92.2	Do.
1910	100.0	Do.
1911	101.9	Do.
Germany:		
1901	73.6	Average official price at Breslau.
1904	78.0	Do.
1907	88.9	Do.
1912	102.6	Do.
New Zealand:		
1891	73.0–109.5	Official average range of prices at Wellington.
1895	73.0–97.3	Do.
1899	60.8–91.2	Do.
1901	73.0–85.2	Do.
1909	97.3–158.2	Do.
1912	109.5–133.8	Do.
Russia, European:		
1890	50.8	Average price at Odessa.
1904	55.1	Official average prices at Odessa.
1905	67.7	Do.
1906	49.7	Do.
1910	57.0	Do.
1912	60.1	Do.
United States:		
1869	59.8	Average farm price Dec. 1.
1879	37.5	Do.
1889	28.3	Do.
1899	30.3	Do.
1909	59.6	Do.
1913	69.1	Do.

[1] Reduced on the basis of 3 bushels to a muid and 200 pounds to a muid of maize; 150 pounds to a muid of oats; and 160 pounds to a muid of barley.

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TABLE 28.—*Prices of corn, oats, barley, and hay in specified countries*—Continued.

[As far as available, prices are quoted here for each country and year mentioned in Table 27, which shows average yields per acre and per capita.]

OATS.

Country and year.	Price per bushel.	Description.
Argentina:	*Cents.*	
1895	17.9	Official prices (average).
1908	30.8	Do.
1912	34.2	Do.
Australia:		
1898	47.3	Official average prices in New South Wales.
1905	35.7	Official average wholesale prices at Melbourne market.
1910	47.4	Official average wholesale prices at Sydney market.
1911	51.9	Do.
1912	68.9	Do.
Austria-Hungary:		
Austria—		
1890	46.0	Official prices in Bohemia.
1900	37.3	Official average prices in Austria.
1902	40.0	Do.
1910	44.5	Do.
Hungary, including Croatia and Slavonia—		
1884	34.9–46.4	Official range of prices at the exchange in Budapest.
1895	37.4	Official average prices at the exchange in Budapest.
1904	37.5	Do.
1909	50.9	Do.
1911	55.7	Do.
British South Africa:		
1904	[1] 46.7	Official average market prices at Cape.
1909	33.7–38.9	Range of farmers' sale price at Cape.
Canada:		
1891	40.0	Ontario No. 2 white, price at Toronto, Ontario.
1901	31.2	Do.
1908	41.9	Do.
1913	35.0	Ontario No. 2 white, on track at Toronto, Ontario.
Denmark:		
1893	51.5	Official average prices.
1898	47.2	Do.
1903	46.5	Do.
1909	49.6	Do.
1912	56.3	Do.
France:	*Cents.*	
1890	54.8	Average official prices.
1895	45.6	Do.
1900	49.5	Do.
1905	52.7	Do.
1910	53.8	Do.
1911	57.6	Do.
1912	59.3	Do.
Germany:		
1892	48.8	Official average prices at Danzig.
1897	44.4	Do.
1900	42.7	Do.
1904	44.7	Do.
1907	59.4	Do.
1912	63.3	Do.
New Zealand:		
1891	35.7–42.2	Official average range of prices at Wellington.
1895	48.7–58.4	Do.
1899	38.9–53.5	Do.
1901	43.8–58.4	Do.
1909	43.8–58.4	Do.
1912	55.2–73.0	Do.
Russia, European:		
1904	31.5	Official average prices at Odessa.
1905	33.4	Do.
1906	[2] 33.3 36.0	Do.
1910	[2] 25.1 32.0	Do.
1912	[2] 36.1 45.0	Do.
Russia, Asiatic:		
1906	16.0	Official average prices in Siberia.
1910	28.3	Do.
1911	48.4	Do.
United Kingdom:		
1890	46.4	Average prices in England and Wales.
1895	36.2	Do.
1900	43.9	Do.
1905	43.3	Do.
1910	43.3	Do.
1913	47.6	Do.
United States:		
1869	38.0	Average farm price Dec. 1.
1879	33.1	Do.
1889	22.9	Do.
1899	24.9	Do.
1909	40.5	Do.
1913	39.2	Do.

[1] Reduced on the basis of 3 bushels to a muid and 200 pounds to a muid of maize; 150 pounds to a muid of oats; and 160 pounds to a muid of barley.

[2] Official average prices for the 50 governments of European Russia.

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TABLE 28.—*Prices of corn, oats, barley, and hay in specified countries*—Continued.

[As far as available, prices are quoted here for each country and year mentioned in Table 27, which shows average yields per acre and per capita.]

BARLEY.

Country and year.	Price per bushel.	Description.
Australia:	*Cents.*	
1898	59.9	Official average prices in New South Wales.
1905	60.8	Official average wholesale prices at Melbourne market.
1910	56.5	Do.
1911	62.3	Do.
1912	101.2	Official average wholesale prices at Sydney market.
Austria-Hungary:		
Austria—		
1890	70.9	Official prices in Bohemia.
1900	65.6	Official average prices in Austria.
1902	59.2	Do.
1910	70.0	Do.
Hungary, including Croatia Slavonia—		
1884	53.2–70.7	Official range of prices at the exchange in Budapest.
1895	50.3	Official average prices at the exchange in Budapest.
1904	57.5	Do.
1909	71.2	Do.
1911	75.4	Do.
British South Africa:		
1904	[2] 98.5	Official average market prices at Cape.
1909	77.9–93.4	Range of farmers' sale price at Cape.
Canada:		
1891	49.50	Ontario No. 2, price at Toronto, Ontario.
1901	44.30	Do.
1908	60.73	Do.
1913	45.26	No. 3 Canada Western, price at Winnipeg.
Denmark:		
1898	63.1	Official average prices.
1898	64.8	Do.
1903	63.8	Do.
1907	69.9	Do.
1912	85.4	Do.
France:		
1890	75.5	Average official prices.
1895	58.3	Do.
1900	69.7	Do.
France—Con.	*Cents.*	
1905	73.6	Average official prices.
1910	75.0	Do.
1911	82.2	Do.
1912	82.6	Do.
Germany:		
1892	77.4	Official average prices at Danzig.
1897	69.5	Do.
1900	69.1	Do.
1904	67.6	Official average prices at Breslau.
1907	74.5	Do.
1912	85.2	Do.
New Zealand:		
1891	64.2–75.9	Official average range of prices at Wellington.
1895	70.1–87.6	Do.
1899	52.6–70.1	Do.
1901	52.6–81.8	Do.
1909	93.4–105.1	Do.
1912	81.8–116.8	Do.
Russia, European:		
1904	39.7	Official average prices at Odessa.
1905	46.8	Do.
1906	[1] 45.9 / 47.8	Do.
1910	[1] 45.2 / 46.0	Do.
1912	[1] 58.9 / 65.7	Do.
Russia, Asiatic:		
1906	30.1	Official average prices in Siberia.
1910	42.4	Do.
1911	55.4	Do.
United Kingdom:		
1890	83.7	Average prices in England and Wales.
1895	64.0	Do.
1900	72.8	Do.
1905	71.1	Do.
1910	67.4	Do.
1913	79.6	Do.
United States:		
1869	70.8	Average farm price Dec. 1.
1879	58.9	Do.
1889	41.6	Do.
1899	40.3	Do.
1909	55.2	Do.
1913	53.7	Do.

[1] Official average prices for the 50 governments of European Russia.
[2] Reduced on the basis of 3 bushels to a muid and 200 pounds to a muid of maize; 150 pounds to a muid of oats; and 160 pounds to a muid of barley.

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TABLE 28.—*Prices of corn, oats, barley, and hay in specified countries*—Continued.

[As far as available, prices are quoted here for each country and year mentioned in Table 27, which shows average yields per acre and per capita.]

HAY.

Country and year.	Price per short ton.	Description.	Country and year.	Price per short ton.	Description.
Australia:			Russia, European:		
1898	$14.81	Official average prices in New South Wales.	1906	$8.56	Official average prices for 50 governments of European Russia.
1906	[1] 15.64	Official average prices at Sydney.	1910	8.84	Do.
1910	[1] 16.84	Do.	1912	9.13	Do.
1912	[1] 27.48	Do.	Russia, Asiatic:		
British South Africa:			1906	8.99	Official average prices in Siberia.
1909	94.60–19.47	Range of farmers' sale price at Cape.	1910	7.70	Do.
Canada:			1911	8.84	Do.
1891	9.12	No. 1, price at Montreal, Quebec.	United Kingdom:		
1901	10.73	Do.	1905	15.75	Average prices of meadow hay in Great Britain (first grade).
1908	13.93	Do.	1910	18.14	Do.
1913	14.04	Do.	1913	18.47	Do.
France:			United States:		
1890	10.70	Average official prices.	1869	10.18	Average farm price Dec. 1.
1895	[2] 8.84	Do.	1879	9.32	Do.
1900	[2]12.03– 9.91	Do.	1889	7.04	Do.
1905	[2]10.47– 8.63	Do.	1899	7.27	Do.
1910	[2]12.55–11.57	Do.	1909	10.62	Do.
1911	14.09–14.53	Do.	1913	12.43	Do.
New Zealand:					
1891	13.04–15.21	Official average range of prices at Wellington.			
1895	10.86–19.55	Do.			
1899	10.86–21.73	Do.			
1901	13.04–19.55	Do.			
1909	8.69–21.73	Do.			
1912	[3] 7.38–22.81	Do.			

[1] Oat and wheat hay.
[2] Natural meadows and grasses.
[3] Oat hay.

TABLE 29.—*Yearly marketings of live stock.*

[Combined receipts at Chicago, Kansas City, Omaha, St. Louis, Sioux City, St. Joseph, and St. Paul.]

Year.	Number.				Index (100—yearly average, 1901-1910).			
	Cattle.	Calves.[1]	Hogs.	Sheep.	Cattle.	Calves.[1]	Hogs.	Sheep.
1900	7,179,344	[2] 304,310	18,573,177	7,061,466	80.7	[2] 43.4	99.6	70.6
1901	7,708,839	[2] 356,952	20,339,864	7,798,359	86.7	[2] 51.0	109.1	78.0
1902	8,375,408	517,702	17,289,427	9,177,050	94.2	73.9	92.7	91.7
1903	8,878,789	550,559	16,780,250	9,680,692	99.8	78.6	90.0	96.8
1904	8,690,699	513,034	17,778,827	9,604,812	97.7	73.2	95.3	96.0
1905	9,202,083	730,639	18,988,933	10,572,259	103.4	104.3	101.8	105.7
1906	9,373,825	796,793	19,223,792	10,864,437	105.4	113.7	103.1	108.6
1907	9,590,710	834,781	19,544,617	9,857,877	107.8	119.2	104.8	98.5
1908	8,827,380	854,637	22,863,701	9,833,640	99.2	122.0	122.6	98.3
1909	9,189,312	868,564	18,834,641	10,284,905	103.3	124.0	101.0	102.8
1910	9,116,687	981,309	14,853,472	12,366,375	102.5	140.1	79.6	123.6
1911	8,629,109	975,176	19,926,547	13,521,492	97.0	139.2	106.8	135.2
1912	8,061,494	909,526	19,771,825	13,733,980	90.6	129.8	106.0	137.3
1913	7,904,552	740,662	19,924,331	14,037,830	88.9	105.7	106.8	140.3
1914	7,182,239	664,296	18,272,091	13,272,491	80.7	94.8	98.0	132.7
1915	7,963,591	726,145	21,031,405	11,160,246	89.5	103.7	112.8	111.6

[1] Receipts at Chicago, Kansas City, St. Joseph, St. Paul, and Sioux City. No returns for Omaha and St. Louis.
[2] No data for Sioux City.

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TABLE 30.—*Number of cattle, sheep, and swine slaughtered at principal places.*

CATTLE, SHEEP, AND LAMBS.

Calendar year.	Cattle, except calves.			Sheep and lambs.		
	Total.	Slaughtered (Chicago, Kansas City, St. Louis, and Omaha).	Receipts (Boston, New York, Philadelphia, and Baltimore).	Total.	Slaughtered (Chicago, Kansas City, St. Louis, and Omaha).	Receipts (Boston, New York, Philadelphia, and Baltimore).
1884	2,267,529	1,256,000	1,011,529	4,348,697	778,000	3,570,697
1885	2,409,956	1,449,000	960,956	4,272,409	988,000	3,284,409
1886	2,514,168	1,615,000	899,168	4,304,064	979,000	3,325,064
1887	2,853,095	2,048,000	805,095	4,605,327	1,173,000	3,432,327
1888	3,404,976	2,362,000	1,042,976	4,727,809	1,275,000	3,452,809
1889	3,901,921	2,688,000	1,213,921	4,781,647	1,476,000	3,305,647
1890	4,653,139	3,373,000	1,280,139	4,896,327	1,622,000	3,274,327
1891	4,545,597	3,356,000	1,189,597	5,253,965	1,879,000	3,374,965
1892	5,102,620	3,911,000	1,191,620	5,505,582	2,112,000	3,393,582
1893	5,042,689	4,104,000	938,689	6,607,642	3,278,000	3,329,642
1894	5,038,126	3,959,000	1,079,126	7,643,883	3,565,000	4,078,883
1895	4,609,337	3,590,000	1,019,337	8,259,586	3,995,000	4,264,586
1896	4,709,453	3,627,000	1,082,453	7,910,361	4,299,000	3,611,361
1897	4,774,495	3,711,000	1,063,495	7,795,623	4,654,000	3,141,623
1898	4,592,913	3,553,000	1,039,913	7,635,128	4,647,000	2,988,128
1899	5,211,922	3,786,000	1,425,922	7,964,686	5,019,000	2,945,686
1900	5,152,269	4,053,000	1,099,269	7,890,878	4,798,000	3,092,878
1901	5,576,310	4,491,000	1,085,310	8,775,980	5,276,000	3,499,980
1902	5,613,396	4,619,000	994,396	9,274,758	5,832,000	3,442,758
1903	5,784,996	4,833,000	951,996	9,141,356	5,827,000	3,314,356
1904	5,597,105	4,553,000	1,044,105	8,593,102	5,465,000	3,128,102
1905	5,956,171	4,826,000	1,130,171	8,304,698	5,879,000	2,425,698
1906	6,126,903	4,993,000	1,133,903	8,723,175	6,117,000	2,606,175
1907	6,043,406	4,811,000	1,232,406	8,657,431	5,701,000	2,956,431
1908	5,483,832	4,404,000	1,079,832	9,188,349	5,824,000	3,364,349
1909	5,721,380	4,664,000	1,057,380	9,924,147	6,578,000	3,346,147
1910	5,720,600	4,730,000	990,600	10,084,706	6,911,000	3,173,706
1911	5,523,000	4,549,000	974,000	11,539,000	8,295,000	3,244,000
1912	5,633,079	4,292,000	1,341,079	15,481,720	9,055,000	6,426,720
1913	5,016,570	3,990,000	1,026,570	12,282,177	8,592,000	3,690,177
1914	4,915,003	3,700,000	1,215,003	10,433,254	8,242,000	2,191,254

SWINE.

Year beginning March 1—	Total.	Western packed.	Eastern packed and receipts.	Year beginning March 1—	Total.	Western packed.	Eastern packed and receipts.
1872		5,915,314		1894	21,619,845	16,003,845	5,616,000
1873		6,529,116		1895	20,480,635	15,010,635	5,470,000
1874		6,766,670		1896	22,669,978	16,928,978	5,741,000
1875		6,142,478		1897	26,134,260	20,201,260	5,933,000
1876		7,409,174		1898	29,793,695	23,651,695	6,142,000
1877		9,048,566		1899	28,171,726	22,200,321	5,970,905
1878		10,858,792		1900	28,980,048	23,600,674	5,379,374
1879		11,001,899		1901	30,396,452	25,411,676	4,984,776
1880		12,243,354		1902	25,246,810	20,605,571	4,641,239
1881		10,551,449		1903	27,617,585	22,375,686	5,241,899
1882		9,342,999		1904	29,691,739	23,918,423	5,773,316
1883		9,183,100		1905	31,272,621	25,574,760	5,697,861
1884		10,519,108		1906	30,978,748	25,430,555	5,548,193
1885		11,263,567		1907	34,400,767	27,980,997	6,419,770
1886		12,083,012		1908	35,197,548	28,996,635	6,200,913
1887		11,532,707		1909	29,923,037	24,162,295	5,760,742
1888		10,798,974		1910	26,511,757	21,755,566	4,756,191
1889	18,906,303	13,545,303	5,361,000	1911	36,083,727	29,918,498	6,165,229
1890	23,966,134	17,713,134	6,253,000	1912	31,713,062	25,583,834	6,129,228
1891	20,913,614	14,457,614	6,456,000	1913	33,718,552	27,621,561	6,096,991
1892	18,196,630	12,390,630	5,806,000	1914	34,244,897	27,386,462	6,858,235
1893	16,789,006	11,605,006	5,184,000				

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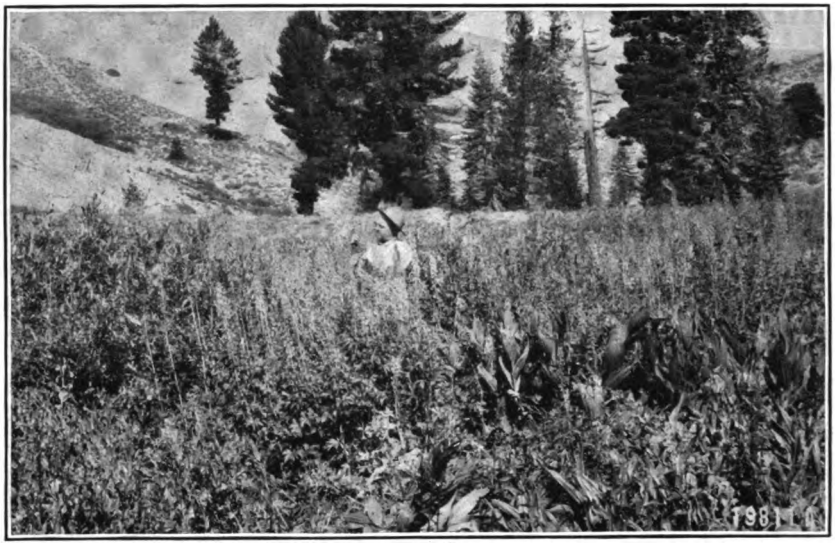

FIG. 1.—TALL LARKSPUR ON A NATIONAL FOREST IN CALIFORNIA.

Losses among cattle from poisonous plants annually run up into the millions. Larkspur poisoning causes probably 75 per cent of the total. On the National Forests this plant is being grubbed out, a slow but certain process.

FIG. 2.—SPRING ON ASHLEY NATIONAL FOREST, UTAH.

Water development is a very great necessity on many western ranges. Before being cleaned out and improved this spring was a mere mudhole and of little value, but it now waters a large number of stock and enables them to graze the adjacent range.

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Issued July 1, 1916.

United States Department of Agriculture,
OFFICE OF THE SECRETARY.

Report No. 110.

[Contribution from the Forest Service, H. S. Graves, Forester.]

MEAT SITUATION IN THE UNITED STATES.

PART II.

LIVE STOCK PRODUCTION IN THE ELEVEN FAR WESTERN RANGE STATES.

BASED ON REPORTS FROM STOCKMEN AND COUNTY CORRESPONDENTS.

BY

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1916.

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EXPLANATORY STATEMENT.

In the winter of 1913–14 a committee of well-known investigators, familiar with agricultural conditions, was appointed by the Secretary of Agriculture to consider the economics of the meat situation. This committee was composed of Dr. B. T. Galloway, Assistant Secretary of Agriculture, as chairman; Dr. H. J. Waters, president of the Kansas State Agricultural College; Prof. C. F. Curtiss, Dean of the Iowa State College of Agriculture and Mechanic Arts and director of the Iowa Agricultural Experiment Station; H. W. Mumford, Professor of Animal Husbandry, University of Illinois; Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture; and Dr. T. N. Carver, director of the Rural Organization Service, U. S. Department of Agriculture. Mr. Leon M. Estabrook, Chief of the Bureau of Crop Estimates, was made secretary of the committee.

No formal report was prepared by this committee, but, at the suggestion of the committee, independent inquiries dealing with several phases of the meat situation were undertaken by specialists of the United States Department of Agriculture. The results of these inquiries have been crystallized by the department in a series of five reports, under the general title of the "Meat Situation in the United States," each report complete within itself and bearing a separate number in the series of reports of the Office of the Secretary, as follows:

Part I. Statistics of Live Stock, Meat Production and Consumption, Prices, and International Trade for Many Countries. By George K. Holmes, Bureau of Crop Estimates. (Report No. 109.)

Part II. Live Stock Production in the Eleven Far Western Range States. By Will C. Barnes and James T. Jardine, Branch of Grazing, Forest Service. (Report No. 110.)

Part III. Methods and Cost of Growing Beef Cattle in the Corn Belt States. By J. S. Cotton and Morton O. Cooper, Office of Farm Management, and W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 111.)

Part IV. Utilization and Efficiency of Available American Feed Stuffs. By W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 112.)

Part V. Methods and Cost of Marketing Live Stock and Meats. By Louis D. Hall, F. M. Simpson, and S. W. Doty, Office of Markets and Rural Organization. (Report No. 113.)

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LIVE STOCK PRODUCTION IN THE ELEVEN FAR WESTERN RANGE STATES.

GENERAL SUMMARY.

Summing up the meat production questions in the 11 far western range States, it is apparent that—

(1) The long downward curve in numbers of live stock has probably reached the bottom, and should slowly rise.

(2) The future cost of producing meats on the western ranges will certainly not be less and in most sections will probably increase.

(3) Better stock, better methods, better care, and possible reductions of losses due to starvation, predatory animals, poisonous plants, etc., will doubtless tend to stimulate the rise in numbers and somewhat check the rise in production costs.

A widespread campaign of education by the States and the Federal Government working in cooperation among the stockmen and farmers should aid materially in increasing the output of meats and in minimizing the cost of production.

CHARACTER OF THE INQUIRY.

For the purposes of this investigation the territory included within the following 11 States was assigned to the Forest Service for study: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

To supplement personal information collected during the field season by the two investigators, schedules were secured from representative stockmen selected by the 160 supervisors of National Forests in these States to present data on range conditions and range live stock production on and adjoining the National Forests. An additional set of schedules was received through the Bureau of Crop Estimates from county correspondents of that bureau. Full and complete reports and estimates were also secured from Forest officers in close touch with the stock industry. The investigations were conducted during the summer of 1914. The data and conclusions presented therefore apply primarily to conditions in 1914 as compared with conditions prior to 1914.

In order to minimize generalizations and determine as nearly as possible the comparative influence of important factors which have

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been responsible for the changes in production, as well as to ascertain the possible future changes in production and the feasible means of increasing production in future, the individual reports were secured approximately by county units. These were studied individually and in groups by larger units within a State similar in conditions affecting live stock production. Conclusions and estimates were then made by States and finally assembled into conclusions for the territory (11 States) assigned to the Forest Service.

The data are presented in three sections:

(1) Live stock production on western ranges, including changes in production since 1910, the main factors responsible for these changes, and the possibilities for increase in production.

(2) Cost of production at present under western range conditions.

(3) Brief discussion of conditions in each State included in the investigations.

LIVE STOCK PRODUCTION ON WESTERN RANGES.

CHANGES IN NUMBER OF CATTLE AND SHEEP SINCE 1910.

Table 1 shows the estimated percentage changes in the number of cattle and sheep on the ranges of the States studied since 1910, and the corresponding increase or decrease in actual number, as computed from the estimated percentage changes and the 1910 census figures on actual number of stock.[1]

TABLE 1.—*Changes in number of cattle and sheep on western ranges, 1910 to 1914, inclusive.*

State.	Cattle.				Sheep.			
	Increase.		Decrease.		Increase.		Decrease.	
	Per cent.	Number.[2]	Per cent.	Number.[2]	Per cent.	Number.[2]	Per cent.	Number.[2]
Arizona			6	47,760	10	122,700		
California			10	161,000			15	362,550
Colorado	2	19,660			10	142,600		
Idaho			10	36,800			11.8	355,298
Montana			26	225,160			40	2,152,400
Nevada			10	43,300	20	231,000		
New Mexico			10	103,000			10	334,700
Oregon			10	55,200			15	404,850
Utah			7.5	25,200			14	255,780
Washington			16	34,560	4	19,040		
Wyoming			20	146,800			22	1,187,340
Total		19,660		878,780		515,340		5,052,918
Net			8.6	859,120			16	4,537,578

[1] Agricultural Outlook, Feb. 7, 1914, Farmers' Bulletin 575.

[2] Census 1910, cattle other than milch cows taken as a basis of computation; total sheep used.

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Considering four sheep the equivalent of one cow, the 1910 figures and the estimated decrease since 1910 may be reduced, for comparative purposes later, to cow units, as follows:

Total cattle other than milch cows, 1910	7,925,000
Total sheep 1910 (28,363,000) cow units	7,090,750
Total cow units, 1910	15,015,750
Net decrease in cattle since 1910	859,120
Net decrease in sheep since 1910 (4,537,576), cow units	1,134,394
Total decrease since 1910, cow units	1,993,514

This means a net decrease of approximately 13 per cent in the total meat animals (cattle and sheep) produced on the ranges in the 11 far western States in 1914 as compared with 1910. The geographic changes are best shown on the accompanying maps (cattle, facing p. 8; sheep, facing p. 12) and in the digest, by States, of schedules received from stockmen and county correspondents (pp. 50–98).

CAUSES OF THE CHANGES.

The factors which have operated to bring about the net decrease of 13 per cent are many. Those tending to decrease production are: (1) Entry and settlement of range lands; (2) high prices of live stock, coupled with uncertainty as to future conditions; (3) difficulty of getting long-time loans for the purchase of breeding stock and comparative ease of securing money for the purchase of feeders; (4) increase in price of land and increase in price of dairy products, operating together to bring about a slight change from beef production to dairying; (5) improvement in grade and weight of animals, somewhat at the expense of numbers; (6) drought and severe winters; (7) range deterioration.

On the other hand, the high price of meat, as compared with the prices of other farm products and the general development of farms, with resulting increase in hay production, have tended toward increased production of live stock, especially during the latter half of the period of years from 1910 to 1914.

SETTLEMENT.

The entry and settlement of lands previously used as range has undoubtedly had the most direct and by far the greatest influence in bringing about the net reduction in the number of live stock produced on the ranges of the far western States during the period from 1910 to 1914, inclusive. It is impossible to make a mathematically exact statement of the decrease due to this factor, but in the computations which follow the effect of settlement is viewed from

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several angles, and what is believed to be a fair estimate of the net results is obtained.

Table 2 shows the public lands entered in each of the 11 States under consideration, together with the total, from 1909 to July 1, 1914, as given in the 1914 report of the Commissioner of the General Land Office.

TABLE 2.—*Public lands entered each year ended June 30, from 1909 to 1914, inclusive.*

[Acres.]

State.	1909	1910	1911	1912	1913	1914	Total.
Ariz	468,160.64	541,793.23	486,066.86	669,292.97	770,449.59	765,962.11	3,701,725.40
Cal	1,290,574.46	1,214,248.36	1,064,644.89	872,301.68	937,230.43	878,874.21	6,257,979.03
Colo	1,983,078.58	3,994,757.50	2,272,068.99	1,354,326.05	1,458,107.84	1,433,305.88	12,495,644.84
Idaho	1,383,443.88	1,768,010.34	1,191,012.91	860,840.25	1,030,312.55	947,553.93	7,181,173.86
Mont	2,460,905.55	6,616,734.69	4,659,232.48	3,687,420.90	4,717,117.51	5,386,954.28	27,528,365.41
Nev	78,190.07	261,125.24	312,510.88	261,188.07	173,799.66	194,308.33	1,281,122.25
N. Mex	2,542,799.18	1,924,145.46	1,377,563.07	1,050,399.79	2,324,250.89	1,870,138.66	11,089,297.05
Oreg	1,091,530.56	1,050,723.53	742,049.86	745,869.45	561,810.14	839,990.89	5,031,974.43
Utah	619,802.07	577,459.86	693,770.08	549,883.11	262,863.44	189,781.34	2,893,559.90
Wash	608,546.35	360,789.20	481,459.19	382,565.57	357,323.51	294,930.73	2,685,614.55
Wyo	897,479.96	1,377,063.74	1,167,042.50	503,090.10	655,255.75	927,007.95	5,526,940.00
Total	13,424,516.30	19,886,951.15	14,447,421.71	10,937,177.94	13,248,521.31	13,728,808.31	85,673,396.72

These 85,673,396.7 acres, taken from the open ranges of the 11 western States since 1909, undoubtedly represent areas with an average carrying capacity considerably above that of the remaining lands. Assuming that the carrying capacity figures deduced from the schedules received in connection with this investigation are fairly reliable estimates of the acreage necessary to support one cow, the carrying capacity of the lands entered since 1909 would be as shown in Table 3.

TABLE 3.—*Carrying capacity of public lands entered from 1909 to July 1, 1914.*

State.	Land entered 1909–1914.	Area necessary for one cow.	Carrying capacity of land entered.
	Acres.	*Acres.*	*Number cows.*
Arizona	3,701,725.40	35	105,763
California	6,257,979.03	[1] 20	212,898
Colorado	12,495,644.84	[1] 20	624,782
Idaho	7,181,173.86	18	398,954
Montana	27,528,365.41	15	1,835,224
Nevada	1,281,122.25	[1] 30	427,040
New Mexico	11,089,297.05	[1] 25	443,572
Oregon	5,031,974.43	[1] 20	251,598
Utah	2,893,559.90	[1] 20	144,678
Washington	2,685,614.55	20	134,280
Wyoming	5,526,940.00	[1] 20	276,347
Total	85,673,396.72	.....	4,855,136

[1] Slightly lower than average for remaining lands, owing to lands entered being better range than the average of the remaining lands.

The deductions following Table 1 (p. 6) show the total cattle and sheep in 1910 to be the equivalent of 15,015,750 cow units. The

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estimated carrying capacity, then (4,855,136 cows), of the lands entered since 1909 is equivalent to approximately 32 per cent of the total live stock on the ranges in these same States in 1910. This is believed to be about right, but it remains now to decide to what extent the lands entered are still producing live stock.

The reports and schedules received in connection with this investigation indicate that the majority of the new settlers (probably 70 per cent) are not raising any live stock over and above their necessary work and milch animals, owing largely to the fact that when they file on the land the majority of them have no credit and barely enough money for necessary equipment and improvements. In those cases in which the settlers are raising more than the necessary work and milch animals the number of animals produced on the entered lands probably exceeds the number supported by these lands prior to settlement. Assuming the proportion of such settlers to be 30 per cent, which is believed to be a maximum, the carrying capacity of the area entered since 1909 is still equivalent to approximately 22 per cent of the total live stock on the ranges in question in 1910.

No figures or estimates are available to show what proportion of the lands entered have actually been placed under cultivation, but without doubt a considerable acreage is still in native pasture on those holdings which are not raising more than milch and work animals. In such cases the available pasture not used by milch cows and work horses usually is rented to stockmen and, consequently, is still used in connection with range live stock. If the acreage so used is placed at 20 per cent of the total acreage of range lands entered, it means a further reduction of the decrease in range live stock, due to settlement, from 22 per cent, as just given, to 16 per cent of the total range live stock in 1910. In other words, one-half of the 85,673,396.7 acres of public lands entered from 1909 to July, 1914, inclusive, is still used in some form or other for the production of live stock other than milch and work animals. According to this method of computation, the estimated net reduction in live stock on the ranges in the far western States since 1910 due to settlement is 16 per cent.

In each of the great number of schedules from stockmen and county correspondents an estimate was given of the decrease in total live stock which has resulted from settlement. These estimates have been carefully studied and averaged by States, and a final estimate has been adopted for this factor in each State. Table 4 gives these estimates by States, the corresponding computed increase or decrease in cattle or sheep, the total increase, the total decrease, and the net decrease.

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TABLE 4.—*Estimate of decrease or increase in live stock due to settlement, based upon schedules returned from stockmen and county correspondents to the Bureau of Crop Estimates.*

State.	Cattle.				Sheep.			
	Increase.		Decrease.		Increase.		Decrease.	
	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.
Arizona			4.2	33,432			5	61,450
California			5	80,500			10	241,700
Colorado			6	58,980			10	142,600
Idaho			10	36,800			12.9	388,419
Montana			30	259,800			38	2,044,780
Nevada			3	12,990			0	
New Mexico			5	51,550			12	401,640
Oregon			9	49,680			11	296,890
Utah			3	10,080			8	146,160
Washington	6	12,960			3	14,280		
Wyoming			0				14	755,580
Total		12,960		593,812		14,280		4,452,219
Net				580,852				4,437,939

Transforming the 4,437,939 sheep to a cattle equivalent, on the basis of one cow to four sheep, gives a total decrease of 1,690,337 cow units due to settlement. The total cow units in 1910, as given following Table 1, amounted to 15,015,750. The reduction of 1,690,337 cow units, due to settlement, as deduced from the individual estimates of Table 4, therefore, represents a decrease of approximately 11¼ per cent in live stock, for the States under study.

The question relative to decrease in live stock due to settlement was so worded as to result in estimates based on total live stock rather than purely range stock. For this reason the 11¼ per cent of estimated decrease may be considered slightly low, owing to the fact that there has been a marked increase in milch cows. Further, thousands of acres of railroad lands, not properly considered in this computation and certainly not in the estimate of lands entered from 1909 to 1914, have passed to private ownership and have been transformed into grain fields.

Since the figures deduced by the two methods to represent decrease in live stock due to settlement (16 per cent in one case and 11¼ per cent in the other) are so near together, and, further, since the 11¼ per cent should be slightly increased in order to eliminate the increase in milch cows and represent range live stock other than milch cows, it is a fair conclusion that the number of live stock on the ranges in the 11 far western States has been reduced approximately 15 per cent by the entry and settlement of public lands in these States since 1909. The explanation of the excess of this decrease over the total estimated decrease from all causes since 1910, as shown by Table 1, is given in the discussions of other factors following.

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HIGH PRICES OF MEAT AND UNCERTAINTY AS TO FUTURE.

Without doubt this factor had some influence in bringing about the decrease in sheep up to and including 1913. Many men who had gone through several cycles of high and low prices for sheep and wool saw an opportunity to sell out at a good profit in 1912 and 1913. They did not want to risk losing this possible profit and the profit accumulated during several years in the sheep business through decrease in price of wool and mutton which they thought might follow. While it is true that many of the sales merely resulted in transfer of ownership and range rights, the sheep remaining on the range, a great many were placed on the market as mutton or feeders, and up to the time of this investigation (1914), had not been replaced. No measure in figures can be given for the decrease occasioned by this factor.

DIFFICULTY OF SECURING MONEY FOR PURCHASE OF BREEDING STOCK.

The credit factor has undoubtedly been influential in at least retarding the rate of restocking and building up the breeding herds following overselling when prices of cattle began to soar. Except intermittently for short periods, there has been little difficulty in securing money for the few months during which it is needed in the feeding business, but this short-term money is useless in the building up of breeding herds. It takes approximately three years to produce a marketable two-year-old steer, and the first crop of two-year-olds is hardly sufficient to warrant a forced payment of a loan on breeding cattle in three years. Five years will provide for the sale of three crops, and is about the minimum time a loan on breeding stock is of value. The difficulty of borrowing on a five-year loan and the comparative ease of securing the short-time money for feeders has resulted in retarding the development of breeding herds, and has increased the drain on "she stock" to make up the number of feeders needed.

INCREASE IN PRICE OF LAND AND DAIRY PRODUCTS.

Increase in price of land in some localities has made it difficult to produce beef at a profit, and as a consequence the rancher or farmer so situated has taken advantage of the high prices of dairy products and gone into dairying. It is believed that the aggregate effect of this factor, however, has been an increase in the total number of stock, including milch cows, rather than an appreciable decrease in beef production. Throughout the States in question the number of "dual purpose" cows used in dairying will probably about offset cases where beef cattle have been sold and dairy breeds purchased.

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IMPROVEMENT IN GRADE AND WEIGHT OF ANIMALS AT THE EXPENSE OF NUMBERS.

The increase in value of the individual animal and marked increase in cost of production has resulted in more attention being given to the profit on the individual animal. The result has been that more range and more forage are reserved per animal than was the case five years ago, and this necessitates a slight sacrifice in numbers. Stockmen will not take the risk of heavy winter losses due to shortage of range, and on the majority of the summer ranges overstocking is prevented by National Forest regulations.

DROUGHT AND SEVERE WINTERS.

In Wyoming severe winters, notably the winter of 1910–11, necessitated the marketing of much live stock, especially sheep, to prevent loss through starvation, and uncertainty as to business conditions delayed restocking to the former capacity. In California the prolonged drought of 1911, 1912, and 1913 resulted in a material reduction of range stock, and part of the range in the southern coast section up to the time of this investigation (1914) had not been fully restocked. These are the most marked cases of reduction due to drought, but both New Mexico and Arizona have been influenced to some extent by this factor, and Colorado also has suffered from hard winters and minor droughts.

RANGE DETERIORATION.

The schedules from stockmen and county correspondents indicate that the ranges as a whole have perhaps deteriorated slightly in the last 10 years. Unregulated range on the public domain in some places is considered to be 50 per cent lower in carrying capacity; in others no change has taken place. Where no change is reported, however, the ranges were badly overgrazed prior to 10 years ago. For example, throughout New Mexico, Colorado, and Wyoming, there has been but little change during the last 10 years, but the damage to these ranges was done largely prior to that time. To offset in a large part the deterioration of unregulated range, the range within National Forests has improved. Considering the area as a whole for the years 1910 to 1914, it is doubtful if range deterioration has resulted in an appreciable decrease in live stock production. Summer ranges as a whole have improved, and what deterioration has taken place in winter ranges has been more than compensated by increase in feeding where necessary. High prices have helped to maintain the balance, for the reason that animals have been too valuable to risk losing them by starvation, and valuable enough to justify the expense of feeding. Range deterioration since 1910, then,

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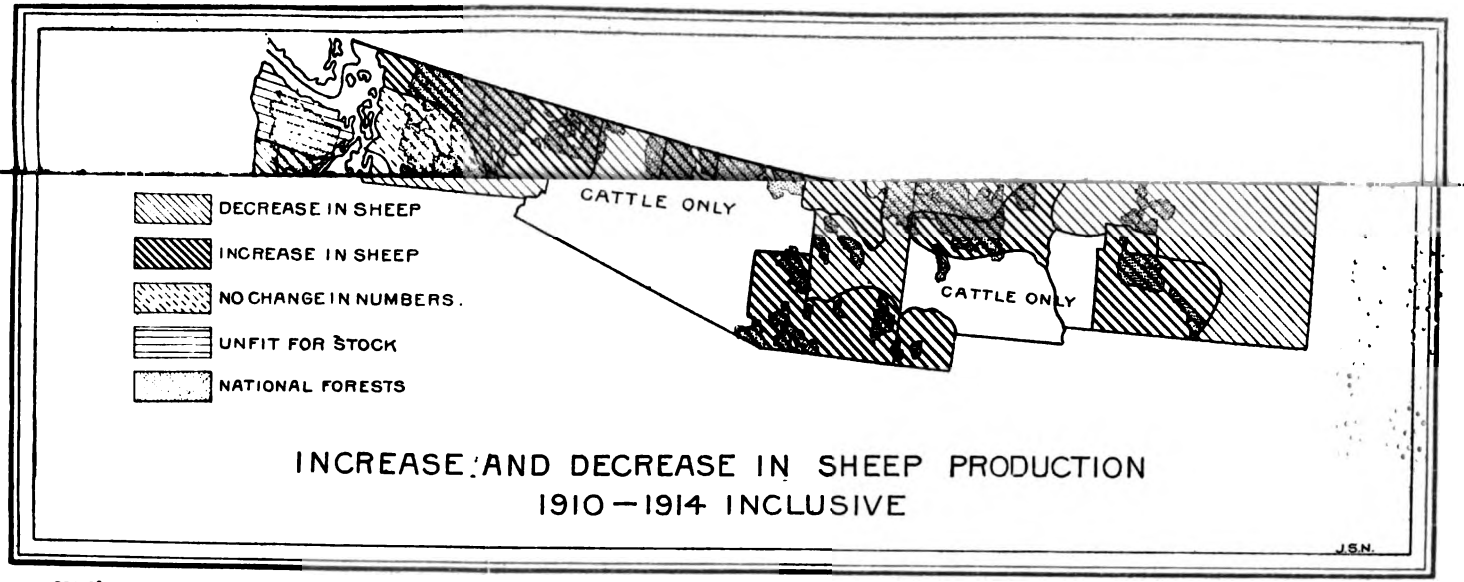

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may be considered negligible as a factor in the decreased production of live stock during this period.

On the other hand, high prices and general farm development have stimulated winter feeding, which has offset in part the loss to range use of the large acreage of land transformed into dry land grain farms. It is believed that increased winter feeding, coupled with increased fall and winter pasturing on alfalfa fields and other cultivated crops, is of sufficient importance to account for the 3 per cent difference between the 16 per cent reduction in the number of animals produced, as estimated from the extent of entry and settlement, and the 13 per cent decrease in live stock on the far western ranges since 1910, as estimated by the Department of Agriculture, and given on page 7.

By way of summary, it may then be said that the estimated 13 per cent decrease in live stock on far western ranges in 1914, as compared with 1910, can be attributed almost wholly to entry and settlement of public lands, which has resulted in the breaking up of ranges formerly used as breeding grounds for cattle and sheep.

POSSIBILITIES OF INCREASED PRODUCTION IN THE FUTURE.

With a minor number of local exceptions, the schedules show optimism, relative to future production of live stock in the States under consideration. They have been studied by counties and by States, and an attempt has been made to give in figures the estimated probable increase during the next 10 years. Table 5 gives these final estimates in percentages for sheep and cattle, and gives also the computed probable number of each class of stock.

TABLE 5.—*Estimated probable increase in live stock during the next 10 years, 1915 to 1924, inclusive, in the 11 far western States.*

State.	Cattle.		Sheep.	
	Per cent.	Number.	Per cent.	Number.
Arizona	15	112,236	10	134,970
California	8	115,920	7	143,811
Colorado	20	200,552	15	285,290
Idaho	20	64,240	10	265,570
Montana	45	283,878	10	322,860
Nevada	25	97,425	.....	.....
New Mexico	20	206,975	10	301,230
Oregon	20	91,560	5	114,207
Utah	25	77,950	6	94,273
Washington	20	36,288	15	74,256
Wyoming	20	146,800	2	84,198
Total	.....	1,433,824	.....	1,770,660

This total estimated probable increase is equivalent to 1,876,489 cow units on the basis of four sheep to one cow.

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Comparing these figures with the estimated number of cow units at present (1914) (13,200,176, exclusive of milch cows), gives an estimated probable increase within 10 years of 14.2 per cent, made up largely of increase in cattle.

It must be admitted, of course, that some of these estimates may be wide of the mark, but they represent the opinions of a great many reporters. They are undoubtely low for the possible increase if the remaining public range should be placed under proper regulation, for the reason that the estimates are based largely on the assumption that no change, or only minor changes, will be made.

REASONS FOR EXPECTING THIS INCREASE.

The reasons advanced by stockmen and county correspondents in support of the estimated probable increase in live stock production within the next 10 years (1915–1924) may, with local exceptions, be grouped under the following headings:

(1) The number of live stock on farms and homesteads will greatly increase.

(2) Continued improvement in National Forest ranges and possible legislation favorable to development and better management of public-domain ranges will result in an increase in carrying capacity of the present range lands.

(3) Increased production on farms and homesteads, increased cost of production, high value of the individual animal, and general advancement in agriculture will result in greater care and economy in the utilization of range as well as forage grown on farms, with a consequent increase of production per unit of forage; and the same factors will result in a better grade of animals and a higher percentage of natural increase.

INCREASE OF LIVE STOCK ON FARMS AND HOMESTEADS.

Since it is estimated that the live stock on far western ranges has been decreased 16 per cent by entry and settlement of range lands since 1909; and, further, since approximately an additional 38½ million acres entered from 1905 to 1908, inclusive, as well as a large acreage of railroad and State lands which have passed into the hands of private individuals since 1905, are producing only a minimum of live stock, it is reasonable to expect that the bulk of increase in live stock production must come from increased production on these lands. The estimates of Table 5 were based largely on this expectation.

As already stated, the schedules show that not to exceed 30 per cent of the new settlers are producing live stock over and above the work

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and milch animals actually necessary (milch cows necessary being perhaps one to three in most cases). Except for a minor number, the reports both from county correspondents and from stockmen say that the new settlers are turning to live stock production and that this movement will continue. The reasons given are: (1) They must raise live stock to make the lands pay; (2) high prices make live stock more profitable than grain farming; (3) the lands under discussion are within territory better adapted naturally to live stock production than to any other form of agriculture; (4) at best these lands have waste corners, stubble lands, and weeds on fallow lands, suitable for grazing, and live stock will help to keep lands clean; (5) the new farmers must eventually grow live stock or deplete the fertility of their lands. Many of the settlers realize that a change to diversified farming with live stock added will eventually be necessary; but, for several cogent reasons, this change will take place slowly. The change will be slightly accelerated by the present and anticipated comparatively high price of meat.

It will not require a large acreage of such lands to produce the necessary succulent winter forage for the few head of stock which can be pastured during summer, yet it is these small numbers grown by the large number of farmers which must eventually be relied upon to increase live stock production in proportion to increase in population. The fact that production of live stock on these dry-land farms involves perhaps 100,000,000 acres of lands in the 11 far western States alone—land the settlement of which has decreased live stock production 16 per cent in these States since 1909—makes it a problem of sufficient magnitude to justify the present efforts on the part of the States and the National Government to work out and demonstrate a profitable system of agriculture for these lands. Without doubt this problem offers the largest and most vital possibility of permanently increasing live stock production in the States under consideration.

INCREASE IN CARRYING CAPACITY OF RANGE LANDS.

Excepting a negligible few, the schedules state that the present range lands can be made to carry more stock. Only a minority give quantitative estimates of the possible increase. These estimates have been studied by county units and by States, and an average estimate of the possible increase in carrying capacity, expressed as a percentage, has been decided upon for each State. To avoid generalizations and to attempt a concrete representation of what the possibilities and limitations are, the estimates by States and the average for the 11 States are presented in Table 6. It should be remembered that they are merely estimates, based upon the information and

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judgment of the investigators, supplemented by a large number of reports from stockmen and county correspondents. It is believed, however, that the figures are conservative.

TABLE 6.—*Estimated possible increase during the next 10 years (1915 to 1924, inclusive) in carrying capacity of present range lands, both on National Forests and outside, in the 11 far western States.*

State.	Possible increase.	State.	Possible increase.
	Per cent.		*Per cent.*
Arizona	20	Oregon	20
California	15	Utah	25
Colorado	25	Washington	20
Idaho	25	Wyoming	20
Montana	15		
Nevada	20	Average	20.1
New Mexico	25		

The means advocated for bringing about this possible increase in carrying capacity are uniform throughout the States, except for occasional local suggestions with a view to solving problems which exist in one locality or State and not in another. The various methods and suggestions given may be grouped under the following headings:

(1) Continuation of protection and regulation of grazing on National Forests.

(2) Grazing regulation of the remaining public-domain lands by some strong central authority; with few exceptions, Government regulation is advocated.

(3) Private ownership of the range lands.

(4) Water development.

(5) Reseeding of ranges.

(6) Improvement in methods of handling stock, including drift fences to control cattle, better methods of salting cattle, and improved methods of herding sheep.

(7) Opening new range by constructing trails, bridges, etc.

(8) Burning brush to clear land for grazing use.

(9) Destruction of prairie dogs.

NATIONAL FORESTS.

With the exception of certain timber ranges on the Pacific coast, where protection against fire has resulted in the growth of young forest and brush which shade out forage plants, the schedules show a general increase in carrying capacity of National Forest range, attributed to regulation, development, and improvement in methods of handling stock. The estimated increases, by States, vary from 15 to 30 per cent, with an average of about 20 per cent. Those re-

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porting believe as a rule that the ranges will continue to improve in carrying capacity, primarily as the result of natural reseeding: by deferred grazing, and by more complete adoption of the improved methods advocated for handling stock. Undoubtedly the National Forest ranges as a whole will continue to increase in the number of stock carried for 10 years at least, owing mainly to more complete adoption of improved methods of managing both range and stock, and to some extent to the development of minor unused areas. On the other hand, a number of Forests of the Pacific Coast States will no more than maintain their present carrying capacity, because reforestation is shading out forage. It is difficult to say in the aggregate what the increase in number of stock carried during the next 10 years will be, but it is estimated that an increase of perhaps 15 per cent is possible in this time.

REGULATION OF REMAINING PUBLIC-DOMAIN LANDS.

Table 7 shows the July 1, 1914, statement of the General Land Office relative to the acreage of unappropriated and unreserved lands in the 11 far western States under discussion.

TABLE 7.—*Unappropriated and unreserved lands of the 11 far western States, July 1, 1914.*[1]

State.	Number of acres.	State.	Number of acres.
Arizona	36,958,749	Oregon	15,969,846
California	20,902,752	Utah	33,756,502
Colorado	18,899,441	Washington	1,799,774
Idaho	16,342,781	Wyoming	31,553,423
Montana	22,237,660		
Nevada	55,502,439	Total	284,028,210
New Mexico	30,104,843		

[1] Circular No. 335, G. L. O., U. S. D. I., July 1, 1914.

The schedules from stockmen and county correspondents vary widely in the estimates of the percentage of these remaining lands which are suitable for agricultural settlement under the present land laws and are not considered sufficiently reliable to include here. As a matter of interest, however, it may be stated that the average of the estimates places the remaining land suitable for agricultural settlement under present laws at approximately 12 per cent of the total 284,000,000 acres.

Assuming that 20 per cent is suitable for homestead entry and will be filed on within 10 years, there would remain in the neighborhood of 225,000,000 acres valuable primarily as range. With few local exceptions, the schedules indicate, and it is a fact beyond ques-

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tion, that taken as a whole the annual forage crop on this vast acreage of land has deteriorated considerably from its original state. In many localities there has been little deterioration the last 10 years, but in such cases decrease in carrying capacity was brought about prior to 10 years ago. The quantitative estimates vary from 0 per cent in Washington, to approximately 50 per cent in Idaho, with Arizona and New Mexico at 30 per cent, Utah 20 per cent, and Nevada 20 per cent. To say that on the whole the annual crop of forage is 25 per cent less than it was originally is believed to be conservative.

The general opinion expressed in the schedules, especially from stockmen, is that the forage crop on these lands would come back to approximately its original condition if the lands were placed under regulation of some form so that overstocking and premature grazing could be prevented, and natural reseeding accomplished by deferred grazing or by temporary protection against grazing. The actual improvement in National Forest ranges in the last 10 years (estimated at 20 per cent) substantiates this belief and is referred to in many of the schedules. Considering the time necessary to actually place so large an area under administration and work out the proper management, it is doubtful if an average of 20 per cent increase in the forage crop could be brought about within 10 years, even if legislation providing for control were enacted at once; and when it is considered that much of the land is in small tracts, isolated from larger bodies by settlements within recent years, therefore difficult of administration, it is probable that an actual improvement in forage crop of 15 per cent would be the maximum that might be expected for the whole territory within 10 years.

There is another element in the situation, however, which would bring about further increase in the number of stock which could be grazed. At the present time, without control over these lands, it is impossible to adopt improved methods of handling the stock, and any possible construction of range improvements under existing legislation is merely an additional incentive for new men to crowd in and overstock the range. As a consequence, the only protection a stockman has is to keep his range eaten to the ground, and the only assurance that he will be able to secure the forage crop any one year is to graze it off before some one else does. The majority of the stockmen realize that such a practice works hardship on the range as well as the stock, but they are helpless to do otherwise.

With regulation would come water development, even distribution of stock, elimination of unnecessary handling, and adjustment of grazing season to avoid continuous premature grazing. These changes would mean conservatively an increase of 15 per cent in meat produc-

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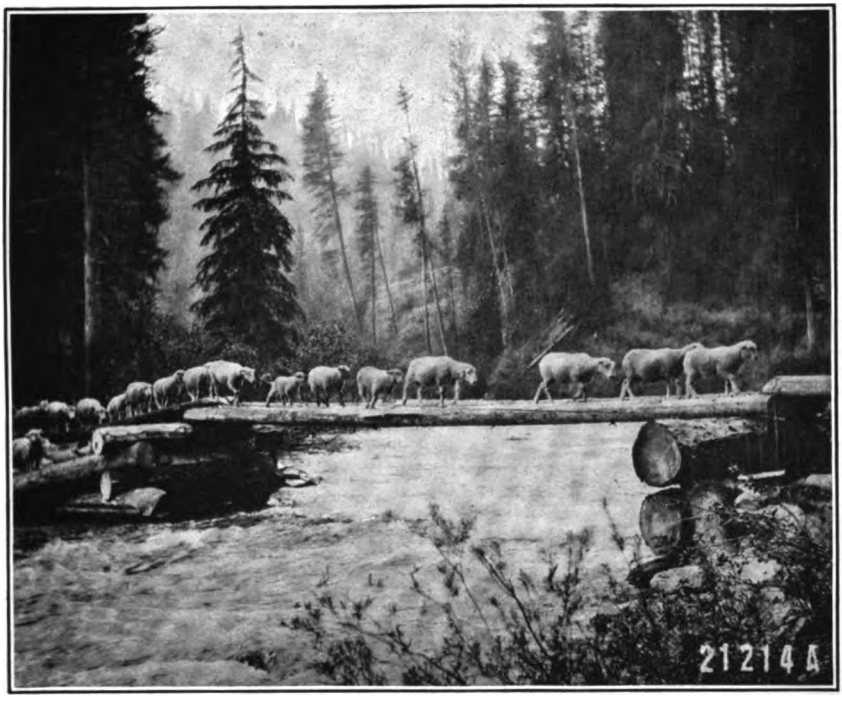

FIG. 1.—FLOCK CROSSING A SHEEP BRIDGE ON A NATIONAL FOREST.

Bridges on which sheep cross swift mountain streams have been built by Forest officers on many National Forests, thus saving long detours as well as making many ranges more accessible and useful.

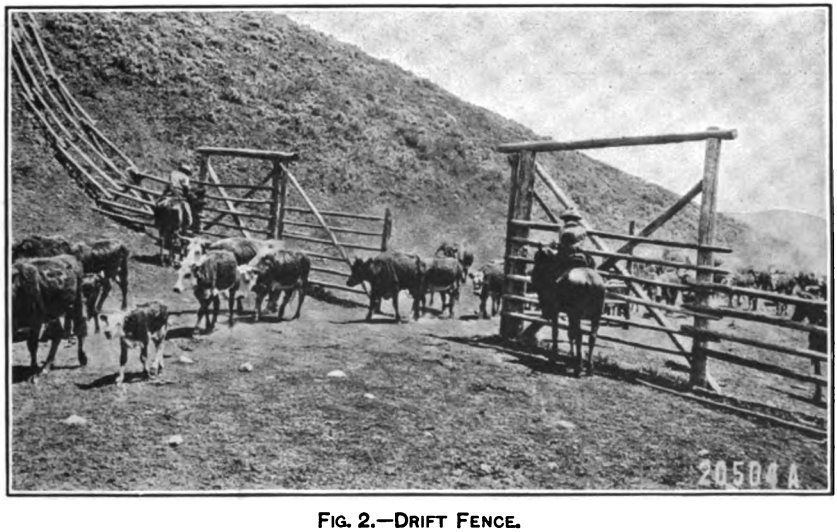

FIG. 2.—DRIFT FENCE.

Drift fences are a great aid in handling range cattle. Forest officers counting cattle into Bridger National Forest, Wyoming, in the spring, through gate in drift fence on Forest boundary.

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tion on these lands, due to improved methods of handling the stock under proper grazing regulation, which, added to 15 per cent increase due to improvement in the range, would mean a total of 30 per cent increase in live stock production in the next 10 years on public domain lands if they were placed under proper regulation. Eventually the increase would probably be nearer 50 per cent.

Not more than 30 per cent of the schedules received made suggestions as to the form of regulation which should be adopted or where the authority for administration should be placed. In probably 90 per cent of the cases where the form of control advisable was mentioned, regulation similar to that in force on National Forests was advocated.

WATER DEVELOPMENT.

For the range lands as a whole the schedules show water development to be the most needed improvement. Large areas in New Mexico, Arizona, southern Utah, and Nevada are at this time either not used because of lack of water or their use is uncertain, incomplete, and inefficient at best. Smaller local areas elsewhere throughout the public domain and National Forests are unused because of lack of water, and additional watering places on areas now in use would result in more efficient use. The water development necessary on the unused tracts is largely deep wells or expensive surface tanks, and water development on the smaller unused areas left will be expensive in proportion to the new range made available. For this reason the water development undertaken by stockmen will be very limited unless the individual is protected in the use of the range for a period long enough to justify the expenditure for development. Even then Government aid will be necessary, at least during the experimental stage, in perhaps one-half the localities.

RESEEDING OF RANGES.

Natural reseeding of the ranges is advocated in the majority of cases where this method of improvement is given as a possibility. A minority of the schedules advocate "seeding to some hardy forage plant." Experience gained from over 500 seeding tests with available cultivated forage plants on National Forests has shown that as a means of improving western ranges such seeding is of minor importance. On logged-off and cleared lands of the Pacific slope conditions are favorable to such improvement. In these cases the work can best be undertaken by private landowners. On the other hand, much can be accomplished by allowing the native vegetation to go to seed, although improvement by this means is dependent upon proper control of both range and stock.

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IMPROVEMENT IN METHODS OF HANDLING STOCK.

The possible increase in carrying capacity through improvement in methods of handling stock has been partly discussed under regulation of public-domain range. It has been demonstrated on National Forest range that there is at least 15 per cent difference in carrying capacity of range under different methods of handling sheep. The new method advocated by the Forest Service involves considerable change from the old custom, and while the progress toward its adoption has been satisfactory, approximately 50 per cent of the sheep are still run under the old system. The adoption of this new method should be rapid on the public-domain range if regulated, but nothing can be done as long as the range is open to all comers. In the handling of range cattle, also, stockmen are beginning to appreciate fully the value of control by drift fences, proper salting, and adequate water supply. While great progress has been made along these lines on National Forests, the campaign for better handling is comparatively new, and there is yet much to be done. On the public domain nothing can be accomplished without legislation to control the lands and the stock and to authorize necessary improvements. With such legislation the problem is less difficult than on the more rugged ranges of the Forests.

OPENING NEW RANGES.

There is to-day comparatively little accessible range, with water available, which is not being used. In northern Idaho and northwestern Montana there is unused summer range for fully 400,000 sheep. In northern Washington there is still unused range, owing to lack of stock. In these localities the main reason for nonuse is the lack of live stock within reasonable distance of the available range, and the lack of winter range or hay ranches to provide for winter care of the stock. In recent years a portion of the available area has been used by sheep shipped in for summer grazing en route to fall market. Use of this character is uncertain, and it will take several years to work out the problem involved in a business on this basis; consequently complete utilization of these unused areas will be a matter of slow progress. In connection with these ranges considerable trail construction will be necessary, but this is being accomplished by the Forest Service as rapidly as demand for the range justifies. Aside from these areas there is but a negligible amount of actually unused range. There is, however, considerable range, especially on National Forests of Colorado and Montana, which is not stocked to full capacity, owing to lack of demand for the range. The partial shifting of the live stock business from a range basis to a farm basis will undoubtedly result in a demand for grazing privi-

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ileges equal to the available range. Little, if anything, can be done to hasten this complete utilization. Available unused and partly used range elsewhere is limited largely to that discussed under the topic "Water development."

Summing up this question of unused range, it may be said that the increase in live stock production as a result of bringing into use hitherto unused range at most will result in an increase of between 1 and 2 per cent of the total range live stock in the States in question. To bring about full utilization will necessitate regulation of public domain lands, water development, and trail construction, and work on the part of officers administering grazing in the way of informing stockmen of the available range and encouraging its use.

BURNING BRUSH AND CLEARING LAND.

On many of the National Forests of the Pacific slope protection against fire is resulting in rapid reforestation. As the timber and brush become more dense the forage crop decreases. Schedules from a few stockmen advocate annual burning to keep down brush. This is clearly inadvisable, even should there be small areas where the benefits derived would more than offset the loss, for the reason that it would endanger larger areas where fire would mean a loss of timber out of all proportion to any benefits derived from improved grazing. The subject is mentioned only in order to account for all methods advocated for increasing the carrying capacity of the western ranges.

DESTRUCTION OF PRAIRIE DOGS AND OTHER RANGE-DESTROYING RODENTS.

Throughout Colorado, New Mexico, Arizona, southern Utah, and eastern Montana there is a vast acreage of range, amounting probably to a total of several million acres, which has been decreased in carrying capacity from 1 to 20 per cent by the destructive work of prairie dogs. For the last six years work in the extermination of prairie dogs has been carried on by the Biological Survey with cooperation from the Forest Service on lands within the National Forests. The result is that a number of Forests have been practically cleared of this range pest. To carry on similar extermination work on outside range will involve the treatment of adjoining private lands as well; consequently it is a big task and perhaps of doubtful advisability unless the lands are placed under regulated use so that the benefit to be derived will be a maximum, and so that individual owners will have a more personal interest in keeping the dogs out after the main work of extermination is done.

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GRAZING LANDS ON INDIAN RESERVATIONS.

In addition to the grazing lands of the unappropriated and unallotted public domain and those within the National Forests there are 31,686,394 acres of grazing lands on the Indian reservations within the 11 States under consideration. On June 30, 1914, the records showed a total of 348,775 cattle, 306,733 horses and mules, and 2,178,510 sheep and goats on these lands. Considering one horse or mule the equivalent of one cow, and four sheep the equivalent of one cow, the total live stock is equivalent to 1,200,135 cow units on the 31,686,394 acres, or an average of 26.4 acres per cow unit. The average area necessary to support one cow as given in Table 3, page 8, is approximately 22 acres. It would seem therefore that the lands of the Indian reservations are about fully stocked, but that there may perhaps be a slight increase in numbers of stock in future, as it is believed that the grazing lands on the Indian reservations are above the average in carrying capacity.

INCREASED PRODUCTION DUE TO GREATER ECONOMY IN THE USE OF RANGE FORAGE AND HAY.

The possibility of improvement along this line was referred to by many of the men who submitted schedules. Just what will be possible or should be expected in the way of increase in numbers due to greater economy in the use of forage and greater attention so as to produce the maximum number on minimum forage is difficult to say. Undoubtedly, however, the increase in value of stock, increase in cost of production, scarcity of range, and general agricultural advancement will result in an increased effort to utilize waste areas and roughage which have heretofore received but little consideration. Further, it will result in greater attention to the protection of live stock against severe storms, as well as greater effort to avoid waste in feeding. The result can not but be increased production per unit of forage.

INCREASED MEAT PRODUCTION BY IMPROVEMENT IN GRADE OF LIVE STOCK.

Table 8 shows the average weight of a long 2-year-old steer by groups of States in which conditions are similar. These averages are based upon weights given in the individual schedules from stockmen.

TABLE 8.—*Average weight of a long 2-year-old steer.*

	Pounds.
Arizona and New Mexico	775
California, Oregon, and Washington	990
Idaho, Montana, and Wyoming	980
Colorado, Nevada, and Utah	910

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The fact that the average weight of a long 2-year-old range-raised steer is as high as it is indicates that some effort has been made to improve the grade of the stock. While no figures are available to show what the average weight was 5 or 10 years ago, the investigators can say from rather wide personal knowledge of conditions in the past and those of to-day that the average grade of range stock has been appreciably improved. A study of the individual schedules received shows a wide variation in the weights given for different localities. For example, the minimum weight reported for California is 700 pounds for a long 2-year-old steer, the maximum 1,175; for Idaho a minimum of 900, and a maximum of 1,100; for Montana a minimum of 700 and a maximum of 1,100; for Nevada, a minimum of 600 and a maximum of 1,100; for New Mexico a minimum of 500 and a maximum of 950; and for Utah a minimum of 750 and a maximum of 1,000. Granting that this wide difference between maximum and minimum is not representative of any large number of stock, enough reports were received which approached the maximum and enough which approached the minimum given to bear out the statement that there is a marked variation in the grade of stock in different localities as well as on the same range. The practice of selling feeders as well as beef by weight rather than by the head has greatly increased and undoubtedly will become the general practice, for the reason that it is a more consistent and more reliable basis of purchase or sale from the standpoint of the grower, the feeder, and the banker. From the standpoint of the stock industry it is an incentive to the production of better stock. Stockmen everywhere are improving their herds and undoubtedly will continue to do so. Control of all range and stock under fence would accelerate progress along this line.

INCREASE IN CALF CROP.

Table 9 shows, by States, the average number of calves for each 100 cows, as well as the number of bulls for each 100 cows, as given by the schedules from stockmen.

TABLE 9.—*Average number of bulls for each 100 cows and average number of calves for each 100 cows.*

State.	Bulls.	Calves.	State.	Bulls.	Calves.
Arizona	6	57	New Mexico	5	66
California	3.73	73.55	Oregon	4.04	75.74
Colorado	4.16	69.3	Utah	4	69
Idaho	4	75	Washington	3.72	79.48
Montana	3.44	75.8	Wyoming	5.52	73.2
Nevada	4	70			

The main object of Table 9 is to show that the general average number of calves for each 100 cows is approximately 70, and that

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there is a maximum difference of 22 calves per 100 cows between Arizona and Washington. Individual schedules show a difference as great as 40 calves per 100 cows, and undoubtedly there are many such cases. Individual schedules report an average calf crop of 90 per cent, which is rare under range conditions. Many, however, report 80 and 85 per cent, but the average is lowered by the great number of schedules which show from 60 to 75 per cent. As long as range was free and winter feeding at the minimum a small calf crop was not serious. The cost of caring for a cow during the year, however, is now so high that the burden of caring for one that does not raise a calf materially increases the cost of production, and might readily eat up all profit in the production of yearlings. For example, in Oregon, with a 75.74 per cent calf crop and 5½ per cent loss of calves, the cost of producing a yearling is about $31. If the calf crop were 85 per cent, the cost of producing a yearling would be approximately $28.

The fact that many individuals are actually getting an 80 to 90 per cent calf crop is an indication that it is not beyond possibility under range conditions, and it is believed that the general average can and will be increased 5 to 10 per cent within the next 10 years by increase in number of bulls, improvement in grade of bulls, better care of both cows and bulls, and more attention to the segregation of dry stock from breeding stock.

High cost of production and high value of the individual animal are the main factors which will work toward bringing about the necessary changes. Any agency engaged in a campaign for lower cost of production and increased production of meat animals, however, should not overlook the possible 10 per cent increase in calf crop and the possible improvement in grade of stock.

SUMMARY.

CHANGES IN NUMBER OF CATTLE AND SHEEP ON RANGES IN THE 11 FAR WESTERN STATES SINCE 1910.

(1) There is an estimated reduction of 859,120 cattle and 4,537,578 sheep in 1914, as compared with 1910. Considering four sheep as the equivalent of one cow, this means a reduction of approximately 13 per cent in live stock (cattle and sheep).

(2) The entry and settlement of approximately 85,500,000 acres of lands in these States since 1909 has resulted in a decrease of approximately 16 per cent in live stock production since 1910, due to the breaking up of ranges formerly used as breeding grounds for cattle and sheep.

(3) High prices and general farm development in the range region have resulted in increased winter feeding of range live stock, thereby reducing the amount of range necessary per animal, and

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consequently in part offsetting the 16 per cent decrease due to settlement.

(4) Uncertainty as to future conditions, difficulty of securing money for purchase of breeding stock, increase in value of land and dairy products, improvement in grade and weight of animals at the expense of numbers, drought and severe winters, and range deterioration have had some effect in bringing about decreases in numbers during a part of the period 1910–1914, but, considering this period as a whole, these factors had only a small influence in the aggregate.

POSSIBILITIES OF INCREASED PRODUCTION IN THE FUTURE.

(1) The production of live stock in the 11 far western States will probably increase 15 per cent in the next 10 years, 1915 to 1924, inclusive, because—

(*a*) Settlers on approximately 100,000,000 acres of range lands settled since 1905 will turn to raising live stock.

(*b*) The carrying capacity of summer range within National Forests will increase probably 15 per cent, and winter feeding adjacent to National Forest ranges will probably increase accordingly.

(*c*) Better management of stock, both on farms and on the range, will result in greater economy in the use of forage and, consequently, will increase the number of stock produced with a given amount of forage.

The probable increase of 15 per cent in carrying capacity of the present National Forest ranges in the next 10 years, 1915 to 1924, inclusive, will be largely the result of complete adoption of improved methods of handling stock and of deferred grazing, supplemented by more complete utilization of range which is now only partly utilized or not utilized at all because of lack of water, trails, bridges, etc., or to lack of local demand for range. To bring about these changes will necessitate persistent effort on the part of the Forest Service to secure the adoption of improved methods of handling stock, a liberal policy relative to drift and division-fence construction, cooperation with stockmen in regard to water development, and construction of trails and bridges.

(2) There still remains a total of approximately 284,000,000 acres of unreserved and unallotted public lands within the 11 States referred to, of which about 250,000,000 acres are essentially grazing lands. Under adequate control, with development of water for stock, construction of sufficient fences, and other range improvements to secure efficient management of both stock and range, these lands would within 10 years probably carry 30 per cent more stock than at present. But without some form of control the best that can be hoped for is the maintenance of the present carrying capacity.

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(3) By the use on the ranges of a higher grade and a greater number of bulls, the separation of breeding stock from dry stock, and better care and management of the breeding animals throughout the year, it should be possible to increase the number of calves 5 to 10 per cent and the average weight of a 2-year-old steer perhaps 30 pounds.

COST OF PRODUCTION AT PRESENT (JANUARY, 1915) UNDER WESTERN RANGE CONDITIONS.

CATTLE.

In order to determine approximately the cost of producing cattle with the limited time and machinery available, it was believed advisable to estimate the feed used at a fair market value in the vicinity. This eliminated the necessity of considering the money invested in farms, ranches, range improvements, and equipment, as consideration of such investments would necessitate consideration of all products, and the cost of their production, on all lands used in connection with the production of live stock. Therefore there may be a slight additional profit in the feed furnished and also in the labor of the owner's family or himself above the actual profit shown by the difference between the cost of producing an animal and its selling price.

The main data upon which the estimates of cost which follow are based were secured from representative stockmen in answer to a schedule of questions sent to them. (See Table 10.)

The answers received were studied by individual schedules, by small units of territory, and by States, with a view to eliminating figures which were, beyond doubt, either too high or too low. The accepted answers were then compiled by States. Table 10 shows the average figure for each question, by States.

For the purpose of contrast the average figures given in Table 10 were compared with individual schedules known by personal information of the investigators to be about right, and occasional slight changes were made before the figures were used in computing cost of production. Such changes, however, are called to attention wherever the item as corrected is used in the computations. With these figures as a basis and an added uniform charge of 25 cents per head for salt and 3 per cent for loss of bulls, the average cost of production for cattle has been computed for each State. For States where the cost of production on an area of any considerable size differs from the average, a supplemental statement of costs is given.

It was difficult to arrive at a satisfactory figure for the item of depreciation from the schedules submitted by stockmen. A large number of the stockmen did not figure depreciation in cows, asserting that after having raised several calves the cow is sold for beef at a

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TABLE 10.—*Averages, by States, of answers from stockmen to questions 1 to 17, on the cost of producing cattle.*

State.	1	2		3	4	5	6	7	8	9	10			11	12	13	14		15	16	17
		a	b								a	b	c				a	b			
	Months.				*Months.*			*Per ct.*		*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Pounds.*	*Pounds.*			
Arizona	12.0	$1.26	$1.76					6.00	$82.00	57.00	8.30	4.40	6.40	6.00	12.70	9.90	774.0	935.0	$2.43	$2.02	$23.01
California	10.0	6.22	5.51	$11.83	2.00	$7.18	$9.32	3.73	94.75	73.55	6.76	4.15	4.12	4.95	17.22	8.10	968.2	1,141.6	2.94	2.12	19.19
Colorado	7.4	2.35	2.12	9.80	4.60	8.56	8.80	4.16	131.90	69.30	8.03	4.90	4.54	5.26	18.32	8.82	883.0	1,084.5	2.76	2.36	35.66
Idaho	7.5	2.25	2.15	8.35	4.00	8.50	8.00	4.00	100.00	75.00	7.00	4.00	3.00	12.00	16.00	10.00	1,000.0	1,200.0	2.95	2.00	30.00
Montana	8.0	3.97	3.07	9.02	4.00	8.04	9.20	3.44	138.00	75.80	7.04	3.87	2.74	4.74	17.50	9.69	991.0	1,211.0	3.87	2.63	29.89
Nevada	8.0	3.00	2.56	7.28	3.50	7.57	7.95	4.00	93.00	70.00	6.00	4.00	4.00	6.00	17.00	8.00	940.0	1,140.0	2.75	1.88	20.00
New Mexico	11.2	1.24	1.10	1.00	.20			5.00	83.00	66.00	10.60	5.60	5.80	5.80	15.40	10.20	725.0	934.0	2.77	4.62	28.00
Oregon	8.59	3.94	3.51	9.92	3.41	7.61	8.05	4.04	113.35	75.74	5.39	3.27	3.00	3.35	13.50	8.42	975.7	1,185.9	3.53	1.85	25.80
Utah	9.0	2.06	1.96	7.65	3.50	7.65	8.15	4.00	93.00	69.00	6.00	5.00	5.00	8.00	15.00	8.00	900.0	1,085.0	2.95	3.88	20.00
Washington	7.9	5.47	5.19	8.61	4.10	9.92	12.25	3.72	124.15	79.48	5.33	4.78	3.70	5.24	14.70	8.70	1,032.0	1,225.0	3.71	3.20	25.61
Wyoming:[1]																					
District 2	7.85	3.76	3.72	8.65	4.15	6.64	7.30	5.52	160.50	73.20	5.87	3.92	2.79	3.58	18.00	9.56	937.0	1,155.0	2.33	1.62½	30.42
District 4	7.0	3.14	1.89	9.33	5.00	8.33	9.75	4.00	132.00	83.00	7.00	3.00	3.00	7.00	12.00	9.00	1,075.0	1,300.0	1.87	2.29	32.00

[1] These are the district divisions of the Forest Service. District 4 covers the Teton and Wyoming National Forests south of Yellowstone Park and lying adjacent to the Idaho State line. District 2 covers the rest of the State.

SCHEDULE OF QUESTIONS SUBMITTED TO STOCKMEN.

1. How many months are your cattle run on the open range or in pasture?
2. What is the average cost to you per head for range and pasturage (for the time given under 1) for (a) a cow and calf; (b) dry stuff from (including) yearlings up?
3. What do you estimate the range, pasturage, and other feed costs you to raise a calf from birth to 12 months of age?
4. How many months each year do you feed your cattle hay or other farm crops?
5. What is the cost of this feed (not including labor for feeding) per head of stock from yearlings up per year, where the cattle are fed as stock cattle, not as beef?
6. What is the average cost per head for this winter feed, including the labor of feeding, in cases where feeding of stock cattle is contracted for by the head, the contractor to furnish hay and do the feeding?
7. How many bulls to the hundred cows do you use in your herd?
8. What is the average value of your bulls?
9. What is the average number of calves born for each hundred cows of breeding age?
10. How many cattle of all ages do you estimate you lose every year for each hundred head from disease, predatory animals, poison, and other causes (a) of calves up to 12 months old; (b) yearlings 12 months to 24 months old; (c) cattle over 24 months old.
11. Based on her value what per cent do you allow for the yearly depreciation of a range cow?
12. What is the average yearly per cent depreciation of bulls?
13. What is the average annual rate of interest charged in your vicinity for money loaned on cattle?
14. What is the average weight of (a) long 2-year-old steers sold direct from the range or pasture; (b) long 3-year-old steers sold direct from the range or pasture?
15. What is your estimate of the yearly labor cost per head for your cattle, excluding calves?
16. What is the rate of taxation per $100 in your county?
17. What is the per head valuation placed upon range cattle in your county for purposes of taxation?

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price which eliminates depreciation. Other schedules based figures of depreciation on decrease in the value of the cow after 5 or 6 years of age. Still others gave actual figures for depreciation of cows without restriction as to age; the average of these figures, by States, varied from approximately 3 to 6 per cent. After a careful study of the whole situation as shown by the schedules and by personal investigations and knowledge, a uniform, arbitrary depreciation of 3 per cent for cows was decided upon for the States in question, and this figure is used in connection with the figures for other items in Table 10 in computing the cost of production.

The figures submitted by stockmen for the item of depreciation in bulls showed a variation similar to the variation in figures on the depreciation of cows. The average by States for this item varied from approximately 12 to 18 per cent. The uniform figure of 14⅔ per cent was adopted for this item and was used in computing the cost of production for each State. This figure is based upon a period of seven years' service, or, say, four years' service, and at the end of the four years a sale value of 40 per cent of the original cost of the bull.

It is believed that this allowance for depreciation in cows and bulls, respectively, will adequately cover this item in the cost of production under the existing systems of management throughout the States in question.

Following is the cost of production, by States:

ARIZONA.

Cost of production is figured on the basis of 100 cows. Depreciation of cows is charged at 3 per cent, instead of 6 per cent, as given in Table 10 (see p. 27). Depreciation of bulls is placed at 14⅔ per cent. Other items are as given in Table 10.

Cost of producing a calf to 12 months of age:		
Pasture for 100 cows for 12 months		$116.00
Loss of cows, 6.4 per cent, $50 valuation		320.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14⅔ per cent, 6 bulls, $82 valuation)	$70.20	
Feed for 6 bulls	6.96	
Loss of bulls, 6 per cent	29.50	
		106.66
Labor, 100 cows and 6 bulls, $2.43 per head	257.50	
Salt, 100 cows and 6 bulls, $0.25 per head	26.50	
Taxes on $23.01 valuation, rate $2.02 per $100		49.30
Feed for calves, 53 head (57 per cent calf crop less 8 per cent loss), $0.10 per head		5.30
Total		1,031.26
Average cost per yearling (53 yearlings raised per 100 cows)		19.45

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Cost of producing a 2-year-old steer:	
100 yearlings	$1,945.00
Pasture, 100 head, 12 months	116.00
Labor, 100 head, 12 months	243.00
Salt, 100 head, 12 months	25.00
Taxes, 100 head, 12 months	46.48
Total	2,375.48
Number raised to 2-year-olds (100 less 6 per cent), 94 head.	
Cost per head	25.27

It is doubtful whether in Arizona the average loss of stock over one year old reaches 6.4 per cent or calves 8 per cent, or whether labor on the average amounts to $2.43 per head. On the other hand, investments in land, water, improvements, and equipment must be taken care of in the feed and labor charge. As a whole, then, the above figures are perhaps slightly higher than the average actual cost.

The following statement is furnished by the manager of a large range outfit in central Arizona, and is fairly representative of the costs involved in handling cattle on the open range in herds of from 2,000 head up. These figures will apply to such sized outfits in Arizona, New Mexico, southern Colorado, and western Texas. The company reporting grazes approximately 17,000 head of high-grade cattle. Of these 17,000 head, 8,333 are bearing cows, 416 are bulls, the balance, about 8,250 head, are mixed young stock. The animals are grazed on open range the year round and no feeding is done. According to the books of the company the following are the items for running the outfit for the year 1913:

Sundries	$4,828.00
Labor	14,317.00
Supplies	5,753.00
Feed	23,870.00
Taxes	4,706.00
Total cash outlay	53,474.00
Cost per head based on actual running expenses	3.13

A depreciation charge of 5 per cent for cows and 15 per cent for bulls would run this total to $80,546, or a total cost of $4.74 per head. Dividing the 5,000 calves produced into this $80,546 cost and depreciation, gives a cost of $16.11 to produce one calf, but this, of course, makes them bear the burden of the whole herd, which is hardly fair.

The average annual branding for the company is 5,000 calves, or about a 60 per cent crop. The company pays for grazing fees on the National Forests 48 cents per head for the year-long period for a small number of their cattle, the majority of them being grazed on a near-by Indian reservation at a cost of $1.50 per head.[1] The com-

[1] For the year 1916 this has been raised to $2.40 per head.

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pany's total investment for cattle, lands, saddle horses, improvements, etc., is approximately $500,000. All figures and estimates are taken exactly as given by the company without change.

Based upon the above data the cost to this company of raising a calf to 12 months of age is shown by the following figures, which are believed to be more truly representative of actual cost of production in Arizona than the first example of cost.

Arizona individual case.

First year:		
Pasture for 100 cows, 12 months		$225.00
Loss and depreciation, $50, 6 per cent, 100 cows		300.00
Bull service—		
Depreciation and loss, 5 bulls at $100 each, 15 per cent	$75.00	
Pasture 5 bulls 1 year	7.50	
		82.50
Labor, 105 head—100 cows, 5 bulls		105.00
Salt, 105 head at 25 cents		26.25
Taxes, 105 head at 28 cents		29.40
Miscellaneous costs, 105 head, 62 cents		65.10
Total		833.25
Number of yearlings raised per 100 cows, 54 head.		
Average cost per yearling		15.43
Second year:		
Cost of 100 yearlings		1,543.00
Feed for 100 yearlings		150.00
Salt for 100 yearlings		25.00
Labor		100.00
Taxes		28.00
Sundries and miscellaneous, 62 cents		62.00
Total		1,908.00
Number raised to 2-year-olds, 94 head,		
Average cost of one 2-year-old steer		20.30

At the present time (January, 1915) this company is selling its 2-year-old steers at from $35 to $40 per head.

In this statement the items of depreciation and loss have been allowed for liberally. The only item not counted is the one of depreciation on the company's improvements and on its investment in saddle horses, for which no data were secured. This company operates in a region where running expenses are somewhat higher than the average, and, while it maintains five bulls to the hundred cows, the extremely low calf crop is accounted for by the fact that the country is extremely rough and the cattle badly scattered. In all probability the addition of about two bulls to the hundred cows would add materially to the company's income.

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CALIFORNIA.

In the following computation the figures of Table 10 are used, except that depreciation of cows is changed to 3 per cent; depreciation of bulls is placed at 14⅔ per cent; and hay feeding is allowed for one-fourth of the cattle. Cost is figured on the basis of 100 cows.

Cost of producing a calf to 12 months of age:		
Pasture for 100 cows, $5.51 per head		$551.00
Hay for 25 cows, $7.18 per head		179.50
Loss of cows, 4 per cent, at $50 valuation		200.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14⅔ per cent, 4 bulls, $94.75 valuation)	$54.14	
Loss of bulls, 4 per cent	15.16	
Feed for bulls, $12.50 each	50.00	
		119.30
Labor, 100 cows and 4 bulls, $2.94 each		305.76
Salt, 100 cows and 4 bulls, $0.25 each		26.00
Taxes, 100 cows and 4 bulls		42.40
Feed for calves—69 calves per 100 cows (73.55 per cent calf crop, less 6.85 per cent loss)—		
Pasture, 70 cents each	$48.30	
Hay, $4 each	276.00	
		324.30
Total		1,898.26
Number of yearlings raised per 100 cows, 69 head.		
Average cost per yearling		27.51
Cost of producing a 2-year-old:		
Cost of 100 yearlings		2,751.00
Pasture, 100 head		551.00
Hay for 25 head, $7.18 each		179.50
Salt, 100 head, $0.25 each		25.00
Labor, 100 head, $2.94 each		294.00
Taxes		42.40
Total		3,842.90
Number raised to 2-year-olds, 96 head.		
Cost per 2-year-old		40.00

It is believed that these costs are approximately correct as an average for California.

COLORADO.

In the following computation the figures of Table 10 for loss are reduced to 3 per cent for cows, 4 per cent for yearlings, and 6 per cent for calves; depreciation on cows is reduced to 3 per cent; depreciation on bulls is placed at 14⅔ per cent; cost of hay for cows is reduced to $7 per head; feed for calves is placed at about one-half

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that for a cow, and feed for a yearling at about three-fourths that for a cow.

Cost of producing a calf to 12 months of age:		
Pasture for 100 cows		$212.00
Hay for 100 cows		700.00
Loss of cows, 3 per cent, $50 valuation		150.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (4 bulls, $131 valuation)	$75.00	
Loss	15.72	
Feed, 4 bulls, $10 each	40.00	
		130.72
Labor, 104 head, $2.76 each		287.04
Salt, 104 head, $0.25 each		26.00
Taxes, 104 head		85.16
Feed for 65 calves (69.3 per cent calf crop, 6 per cent loss)—		
Pasture, 65 calves, $0.25 each	$16.25	
Hay, 65 calves, $3.50 each	227.50	
		243.75
Total		1,984.67
Number raised to yearlings, 65 head.		
Average cost per yearling		30.50
Cost of producing a 2-year-old:		
Cost of 100 yearlings		3,050.00
Pasture, 100 yearlings		212.00
Hay, 100 yearlings, $5.25 each		525.00
Salt, 100 yearlings, $0.25 each		25.00
Labor, 100 yearlings, $2.76 each		276.00
Taxes, 100 yearlings		84.16
Total		4,172.16
Number raised to 2-year-olds (4 per cent loss), 96 head.		
Average cost per 2-year-old		43.46

The figures given in Table 10 are undoubtedly too high, as an average for Colorado, to be consistent with those allowed for adjoining States. Therefore it is believed that the reductions made are justifiable, and that the costs given for a yearling and a 2-year-old are approximately correct.

IDAHO.

In the following computation the figures of Table 10 are used, except that depreciation of cows is placed at 3 per cent and of bulls at 14⅔ per cent; hay feed for a calf is placed at about one-half that for a cow, and for a yearling about three-fourths that for a cow, as given in Table 10.

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Cost of producing a calf to 12 months of age:		
Pasture for 100 cows, $2.15 each		$215.00
Hay for 100 cows, $8.50 each		850.00
Loss of cows, 3 per cent, $50 valuation		150.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14⅔ per cent, 4 bulls, $100 valuation)	$57.10	
Loss of bulls, 3 per cent, $100 valuation	12.00	
Feed for 4 bulls, $10.65 each	42.60	
		111.70
Labor, 100 cows and 4 bulls, $2.95 each		306.80
Salt, 100 cows and 4 bulls, $0.25 each		26.00
Taxes, 100 cows and 4 bulls		62.40
Feed for calves, 70 head (75 per cent calf crop, 7 per cent loss)—		
Pasture, 70 calves, $0.10 each	$7.00	
Hay feeding, 70 calves, $4.50 each	315.00	
		322.00
Total		2,193.90
Number raised to yearlings, 70 head.		
Average cost per yearling		31.34
Cost of producing a 2-year-old:		
Cost of 100 yearlings		3,134.00
Pasture for 100 yearlings, $2.15 each		215.00
Hay feeding, 100 yearlings, $6 each		600.00
Salt, 100 yearlings, $0.25 each		25.00
Labor, 100 yearlings, $2.95 each		295.00
Taxes, 100 yearlings		60.00
Total		4,329.00
Number raised to 2-year-olds (4 per cent loss), 96 head.		
Cost of producing a 2-year-old		45.10

These costs are believed to be approximately right for Idaho as a whole when market value of hay and labor is allowed.

MONTANA.

In the following computation the labor charge of Table 10 has been reduced to $3 per head; depreciation on cows to 3 per cent, and of bulls to 14⅔ per cent. Otherwise the computations are based upon costs as given in Table 10.

Cost of producing a calf to 12 months of age:		
Pasture for 100 cows, $3.07 each		$307.00
Feed for 100 cows, $8.04 each		804.00
Loss on 100 cows, 3 per cent, $50 valuation		150.00
Depreciation of 100 cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14⅔ per cent, 3.44 bulls, $138 valuation)	$67.80	
Loss of bulls, 3 per cent	14.24	
Feed of bulls, $11 each	40.00	
		122.04

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Cost of producing a calf to 12 months of age—Continued.		
Labor, 100 cows and 4 bulls, $3 each		$312.00
Salt, 100 cows and 4 bulls, $0.25 each		26.00
Taxes, 100 cows and 4 bulls		81.32
Feed for calves, 71 head (75.8 per cent calf crop, 7 per cent loss)—		
Pasture for 71 calves, $0.90 each	$63.90	
Hay for 71 calves, $4.50 each	319.50	
		383.40
Total		2,335.76
Number raised to yearlings, 71 head.		
Average cost per yearling		32.89
Cost of producing a 2-year-old:		
Cost of 100 yearlings		3,289.00
Pasture, 100 yearlings, 8 months, $3.07 each		307.00
Hay, 100 yearlings, 4 months, $6 each		600.00
Salt, 100 yearlings, $0.25 each		25.00
Labor, 100 yearlings, $3 each		300.00
Taxes, 100 yearlings		81.32
Total		4,602.32
Number raised to 2-year-olds (4 per cent loss), 96 head.		
Average cost per 2-year-old		47.90

The above figures are probably a little too high for the cost of production in Montana as an average. The following statement of cost is for the eastern range section and is based upon the figures secured from a large outfit in this part of the State:

Montana individual case.

Cost of producing a calf to 12 months of age, eastern Montana:		
Pasture for 100 cows, 8 months		$450.00
Hay for 75 cows with calves, $7.50 each		562.00
Loss on 100 cows, $50 valuation		100.00
Depreciation on 100 cows, $50 valuation		150.00
Bull service—		
Depreciation of bulls	$85.00	
Loss of bulls	30.00	
Feed for bulls	48.00	
		163.00
Salt, 100 cows and 4 bulls, $0.25 each		26.00
Labor, 100 cows and 4 bulls, $2 each		208.00
Taxes, 100 cows and 4 bulls		90.00
Total		1,749.00
Number of yearlings raised per 100 cows, 65 head.		
Average cost per yearling		26.90

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Cost of producing a 2-year-old:		
Cost of 100 yearlings		$2,690.00
Pasture, 100 yearlings		450.00
Hay fed only to cows with calves.		
Labor, 100 yearlings		200.00
Salt, 100 yearlings, $0.25 each		25.00
Taxes, 100 yearlings		90.00
Total		3,455.00
Number raised to 2-year-olds (3 per cent loss), 97 head.		
Average cost of 2-year-old		35.60

If for this large outfit in eastern Montana where only cows with calves are fed hay these estimates of cost are about right, as they appear to be, then the figures of the first computation, in which all stock are fed from three to four months, are but little too high. Probably for the entire State of Montana an average of $30 for the production of a yearling and $45 for the production of a 2-year-old is about right, considering, as we have in all computations, hay, pasture, and labor approximately at their value on the ground.

NEVADA.

In the following computation, loss of cows as given in Table 10 has been reduced to 3 per cent; depreciation of cows to 3 per cent; depreciation of bulls to 14¾ per cent; hay for a calf to approximately one-half that for a cow; hay for a yearling to about three-fourths that for a cow; otherwise the items as given in Table 10 are used:

Cost of producing a calf to 12 months of age:		
Pasture for 100 cows, 8 months, $2.56 each		$256.00
Hay for 100 cows, 4 months, $7.57 each		757.00
Loss of cows, 3 per cent, $50 valuation		150.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14¾ per cent, 4 bulls, $93 valuation)	$53.10	
Loss, 3 per cent	11.26	
Feed, $10.13 each	40.52	
		104.88
Salt, 104 head, $0.25 each		26.00
Labor, 104 head, $2.75 each		286.00
Taxes, 104 head		39.10
Feed for 66 calves (70 per cent calf crop, 6 per cent loss)—		
Pasture, 66 calves, $0.44 each	29.00	
Hay, 66 calves, $4 each	264.00	
		293.00
Total		2,061.98
Number raised to yearlings, 66 head.		
Average cost per yearling		31.25

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Cost of producing a 2-year-old:	
Cost of 100 yearlings	$3,125.00
Pasture, 100 yearlings, 8 months	256.00
Hay, 100 yearlings, 4 months, $5.50 each	550.00
Salt, 100 yearlings, $0.25 each	25.00
Labor, 100 yearlings, $2.75 each	275.00
Taxes, 100 yearlings	37.60
Total	4,268.60
Number raised to 2-year-olds (4 per cent loss), 96 head.	
Average cost per 2-year-old	44.46

The above costs are believed to be about correct on the basis of market value for hay and labor.

NEW MEXICO.

In the following computation the figures of Table 10 are used, except that depreciation of cows is changed to 3 per cent and depreciation of bulls is placed at 14⅔ per cent.

Cost of producing a calf to 12 months of age:		
Pasture for 100 cows, 12 months, $1.10 per head		$110.00
Loss of cows, 5.8 per cent, $50 valuation		290.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14⅔ per cent, 5 bulls, $83 valuation)	$59.30	
Loss of bulls, 5.8 per cent	24.07	
Pasture, 5 bulls, $1.10 per annum	6.95	
		90.32
Labor, 100 cows and 5 bulls, $2.77 each		290.85
Salt, 100 cows and 5 bulls, $0.25 each		26.25
Taxes, 100 cows and 5 bulls		135.80
Feed for calves—		
60 calves per 100 cows (66 per cent calf crop, 10 per cent loss).		
Pasture, 60 calves, $0.14 each		8.40
Total		1,101.62
Number raised to yearlings, 60 head.		
Average cost per yearling		18.36
Cost of producing a 2-year-old:		
Cost of 100 yearlings		1,836.00
Pasture, 100 yearlings (12 months, $1.10 each)		110.00
Salt, 100 yearlings, $0.25 per head		25.00
Labor, 100 yearlings, $2.77 per head		277.00
Taxes, 100 yearlings		129.36
Total		2,377.36
Number raised to 2-year-olds (6 per cent loss), 94 head.		
Average cost of producing a 2-year-old		25.30

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OREGON.

In the following computation the Table 10 figure on depreciation of cows has been reduced to 3 per cent; labor charge to $3; depreciation of bulls increased to 14⅔ per cent; feed for calf placed at about one-half that of a cow, and for a yearling about three-fourths that of a cow.

Cost of producing a calf to 12 months of age:		
Pasture for 100 cows		$351.00
Hay for 100 cows		761.00
Loss of cows, 3 per cent, $50 valuation		150.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14⅔ per cent, 4 bulls, $113.35 valuation)	$64.75	
Loss of bulls, 3 per cent	18.60	
Feed for 4 bulls, $11.12 each	44.48	
		122.83
Salt, 104 head, $0.25 each		26.00
Labor, 104 head, $3 each		312.00
Taxes, 104 head		49.66
Feed for 72 calves (75.74 per cent calf crop, 5.39 per cent loss)—		
Pasture, 72 calves, $0.43 each	$30.96	
Hay, 72 calves, $4 each	288.00	
		318.96
Total		2,241.45
Number raised to yearlings, 72 head.		
Average cost per yearling		31.13
Cost of producing a 2-year-old:		
Cost of 100 yearlings		3,113.00
Pasture, 100 yearlings		351.00
Hay, 100 yearlings, $5.50 each		550.00
Salt, 100 yearlings, $0.25 each		25.00
Labor, 100 yearlings, $3 each		300.00
Taxes, 100 yearlings		47.75
Total		4,386.75
Number raised to 2-year-olds (4 per cent loss), 96 head.		
Cost of producing a 2-year-old		45.70

UTAH.

In the following computation the figure of Table 10 on loss of yearlings has been reduced to 4 per cent; loss of cows to 3 per cent; depreciation of cows to 3 per cent; depreciation of bulls, 14⅔ per cent; cost of hay for calf to one-half that for a cow; cost of hay for yearling to about three-fourths that for a cow. Aside from these changes, figures of Table 10 are used.

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Cost of producing a calf to 12 months of age:		
Pasture for 100 cows, 9 months		$195.00
Hay for 100 cows, 3 months		765.00
Loss of cows, 3 per cent, $50 valuation		150.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14⅔ per cent, 4 bulls, $93 valuation)	$53.10	
Loss, 3 per cent	11.10	
Feed, $9.61 each	38.44	
		102.64
Salt, 104 head, $0.25 each		26.00
Labor, 104 head, $2.95 each		306.80
Taxes, 104 head		80.70
Feed for 65 calves (69 per cent calf crop, 6 per cent loss)—		
Pasture, 65 calves, $0.10 each	$6.50	
Hay, 65 calves, $4 each	260.00	
		266.50
Total		2,042.64
Number raised to yearlings, 65 head.		
Average cost per yearling		31.43
Cost of producing a 2-year-old:		
Cost of 100 yearlings		3,143.00
Pasture, 100 yearlings, 9 months		196.00
Hay, 100 yearlings, 3 months, $5.50		550.00
Salt, 100 yearlings, $0.25 each		25.00
Labor, 100 yearlings, $2.95 each		295.00
Taxes, 100 yearlings		77.60
Total		4,286.60
Number raised to 2-year-olds (4 per cent loss), 96 head.		
Average cost of producing a 2-year-old		44.66

The foregoing costs are computed as an average for Utah as a State, and are believed to be approximately correct, although perhaps slightly high, for the reason that a large percentage of the stock is produced in southern Utah, where there is little feeding. The following statement shows approximately the cost of production in the southern and more purely range section of Utah:

Southern section of Utah.

Cost of producing a calf to 12 months of age:		
Cost of pasture, 100 cows, 12 months		$94.00
Hay for 25 cows, $8 per head		200.00
Loss of cows, 5½ per cent, $50 valuation		275.00
Depreciation, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation of bulls	$63.00	
Loss of bulls	18.94	
Feed for bulls	12.00	
		93.94

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Cost of producing a calf to 12 months of age—Continued.	
Salt, 104 head, $0.26 each	$26.00
Labor, 104 head, $2.20 each	228.80
Taxes, 104 head	42.20
Feed for 61 calves (hay and pasture)	130.00
Total	1,239.94
Number raised to yearlings, 65 head.	
Average cost per yearling	19.08
Cost of producing a 2-year-old:	
Cost of 100 yearlings	1,908.00
Pasture, 100 yearlings, 12 months	94.00
Salt, 100 yearlings, $0.25 each	25.00
Labor, 100 yearlings, $2.20 each	220.00
Taxes, 100 yearlings	42.00
Total	2,289.00
Number raised to 2-year-olds (6 per cent loss), 94 head.	
Average cost of 2-year-old	24.35

The southern Utah conditions for which these costs are applicable are comparable to those of Arizona and New Mexico.

WASHINGTON.

In the following computation the Table 10 figures on cost of pasture are reduced to $4 per head; hay feeding to $9 per head; depreciation of cows to 3 per cent; depreciation of bulls to 14¾ per cent; loss of cows to 3 per cent; feed for a calf to one-half that for a cow; feed for a yearling to about three-fourths that for a cow; labor charge to $3 per head. Otherwise, the Table 10 figures are used in the computation.

Cost of producing a calf to 12 months of age:		
Pasture for 100 cows, 8 months, $4 per head		$400.00
Hay for 100 cows, 4 months, $9 per head		900.00
Loss of cows, 3 per cent, $50 valuation		150.00
Depreciation of cows, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14¾ per cent, 3.75 bulls, $124.15 valuation)	$66.50	
Loss of bulls, 3 per cent	13.96	
Feed for bulls	45.00	
		125.46
Salt, 104 head, $0.25 per head		26.00
Labor, 104 head, $3 per head		312.00
Taxes, 104 head		85.10

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Cost of producing a calf to 12 months of age—Continued.		
Feed for 75 calves (79.48 per cent calf crop, 5½ per cent loss)—		
Pasture for 75 calves, $0.30 each	$22.50	
Hay for 75 calves, $4.50 each	337.50	
		$360.00
Total		2,508.56
Number raised to yearlings, 75 head.		
Average cost per yearling		33.45
Cost of producing a 2-year-old:		
Cost of 100 yearlings		3,345.00
Pasture, 100 yearlings, 8 months, $4 each		400.00
Hay, 100 yearlings, 4 months, $7 each		700.00
Salt, 100 yearlings, $0.25 each		25.00
Labor, 100 yearlings, $3 each		300.00
Taxes, 100 yearlings		81.92
Total		4,851.92
Number raised to 2-year-olds (4 per cent loss), 96 head.		
Average cost of producing a 2-year-old		50.54

The foregoing costs for Washington may be a little high for the average of what might be considered range production, owing to the fact that many of the schedules received apply to agricultural sections where hay and farm pasturage are high. To partly offset this fact, the cost of pasture and hay, as shown by the average of the reports in Table 10, was reduced. It is believed, however, that these items are still a little high, and therefore that the cost of production given is a trifle over the average for the State.

WYOMING.

In the following computation the figures of Table 10 for depreciation of cows is reduced to 3 per cent, depreciation of bulls is placed at 14⅔ per cent, cost of feed for a calf is placed at one-half that for a cow, and for a yearling three-fourths that for a cow. Otherwise, approximately the figures of Table 10 are used.

Cost of producing a calf to 12 months of age:		
Cost of pasturage for 100 cows, 7½ months		$372.00
Cost of hay for 100 cows, 4½ months		800.00
Loss of cows, 3 per cent, $50 valuation		150.00
Depreciation, 3 per cent, $50 valuation		150.00
Bull service—		
Depreciation (14⅔ per cent, 4½ bulls, $160 valuation)	$102.85	
Loss, 3 per cent	21.60	
Feed and pasture	52.74	
		177.19

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Cost of producing a calf to 12 months of age—Continued.	
Labor, 104 head, $2.33 each	$242.33
Salt, 104 head, $0.25 each	26.00
Taxes, 104 head	62.40
Feed for 71 calves (75 per cent, 6 per cent loss)—	
Pasture for 71 calves included with cow.	
Hay for 71 calves, $4 each	284.00
Total	2,263.92
Number raised to yearlings, 71 head.	
Average cost of producing a yearling	31.88
Cost of producing a 2-year-old:	
Cost of 100 yearlings	3,188.00
Pasture, 100 yearlings, $3.72 each	372.00
Hay, 100 yearlings, $6 each	600.00
Salt, 100 yearlings, $0.25 each	25.00
Labor, 100 yearlings, $2.33 each	233.00
Taxes, 100 yearlings	60.00
Total	4,478.00
Number raised to 2-year-olds (3 per cent loss), 97 head.	
Average cost per 2-year-old	46.17

The following figures were furnished by one of the largest range cattlemen in the State of Wyoming. The cattle are grazed for four months upon one of the National Forests in that State, three months on the open public ranges (two in the spring and one in the fall), and about five months upon the owner's private fenced pastures, during which time they are fed hay when the snow covers the pastures, generally a period of from two to three months, depending upon the snowfall.

The cattle generally come from the Forest ranges fit for beef, the steers being shipped to eastern markets. None of these men figure on depreciation of cows, as they claim to sell them as beef animals for more than their value as cows.

Local prices for 2-year-old steers in the fall of 1914 averaged $60 to $65; fat cows, $50 to $55. Three bulls are used to the hundred cows. Bulls are valued at $200. The calf crop is only 50 per cent. The owner estimates that it costs him $25 to raise a yearling steer and $35 a 2-year-old steer.

His land is valued at from $15 to $25 per acre. Hay costs him in the stack about $1 a ton for the labor. Hay is valued at $5 per ton, and a ton is required to winter a cow. The calf crop should be much higher, as the range used is open and fairly smooth. Probably two more bulls to the hundred cows would greatly increase his calf crop.

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Wyoming individual case.

First year:		
One cow—		
On range 7 months—		
Forest fees		$0.25
No cost open range.		
In pasture 5 months—		
Pasture values		.75
Hay feed, 1 ton		5.00
Salt		.25
Cost of feed, 12 months		6.25
Two cows, 12 months (on basis of 50 per cent calf crop)		12.50
Feed for calf in winter, one-half ton		2.50
Depreciation and loss, 6 per cent on $50 value, 2 cows		6.00
Labor costs, 2 cows		2.00
Bull service, valued at $200, 50 per cent crop, 3 to 100 cows—		
Feed, 3 bulls, 12 months	$18.00	
Taxes, $0.49	1.47	
Depreciation, 4 years' use	93.75	
Losses, 3 per cent	18.00	
Salt	.75	
	131.97	
Divide by 48 (4 per cent losses)		2.75
Cost to raise calf to 12 months		25.75
Second year:		
Feed, pasture, etc., 1 steer, 12 months		6.00
Taxes		.49
Losses, 3 per cent on $60 basis		1.80
Labor		1.00
Salt		.25
Total costs to raise 2-year-old steer		35.29

Owner estimates annual cost per animal about $7.50, divided as follows:

Labor	$1.00
Tax and salt	.75
Hay fed	5.00
Forest fees	.25
Miscellaneous items	.50
Total	7.50

These items cover all costs excepting deterioration of improvements, such as fences, tools, etc. The hay is taken at its full market value, which, of course, more than covers the question of an allowance for the land on which it was raised. Bull service is above the normal, owing to high price of bulls used and the very low calf crop. Owner markets about 1,200 fat cows and steers annually.

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ALL STATES.

Table 11 shows the cost, by States, of producing a yearling and a 2-year-old, as developed in the preceding computations by States.

TABLE 11.—*Average cost, by States, of producing a yearling and a 2-year-old steer or heifer.*

State.	Yearling.	Two-year-old.
Arizona:		
Average figures of Table 10	$19.45	$35.27
Special report of large range outfit	15.43	20.30
California: Average figures of Table 10	27.51	40.00
Colorado: Average figures of Table 10	30.50	43.46
Idaho: Average figures of Table 10	31.34	45.10
Montana:		
Average figures of Table 10	32.89	47.90
Special report for eastern Montana	26.90	35.60
Nevada: Average figures of Table 10	31.25	44.46
New Mexico: Average figures of Table 10	18.36	25.30
Oregon: Average figures of Table 10	31.13	45.70
Utah:		
Average figures of Table 10	31.43	44.66
Schedules in southern Utah only	19.08	24.35
Washington: Average figures of Table 10	33.45	50.54
Wyoming:		
Average figures of Table 10	31.38	46.17
Special report of large outfit	25.75	35.20

At first glance the cost figures of Table 11 may appear much too high. It should be remembered, however, that they are based upon approximate market values for hay and pasture, in order to avoid consideration of investment in lands. Also, the labor charge included is sufficient to give the owner a fair compensation for the care of his stock, and loss as well as depreciation is taken care of. The difference between the cost of producing a steer as shown by Table 11 and the price the animal brings on the market is therefore a net interest-profit on money invested. By this method of computation the owner is given a profit on the hay and pasture produced on his farm or ranch, which he might not get if live stock were not produced, and therefore the net profit in production is really greater than is shown above in Table 11.

Granting that the costs given are a trifle high, it is believed that the man who is urged to substitute cattle production for other forms of agriculture in sections where it is necessary to feed hay to all stock for from three to five months each year should figure on approximately $30 as the cost of producing a good yearling, and $45 for producing a 2-year-old, under the present efficiency of the western stock industry. By raising 80 to 85 yearlings instead of 70 to 75 per 100 cows, and by decreasing the 3 to 4 per cent loss in cows and yearlings, these costs could be reduced to about $25 for a yearling and $40 for a 2-year-old, and still give adequate compensation for feed and labor.

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SHEEP.

The report of the United States Tariff Board, appointed by President Taft,[1] on the entire subject of wool production in the United States covers sheep production so fully and carefully that, excepting to revise the figures where that seems necessary in order to bring them down to the year 1914, the securing of additional data on the cost of producing mutton was not deemed advisable. The investigations of the Tariff Board were carried on during the summer of 1911, and the few changes which in the opinion of the investigators have taken place since that report was published will receive due weight in considering the matter. The work of the Tariff Board covered the same group of States as are now under consideration, and in compiling the data secured these States were divided into three separate groups, in each of which the conditions under which sheep were handled were so uniform as to make this plan a satisfactory one. These groups were as follows: First, the State of California, in which conditions were not comparable to those found in any other of the western sheep-raising States; second, the southwestern group, consisting of Arizona, Colorado, and New Mexico; third, the northwestern group, consisting of Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

CALIFORNIA.

In the State of California conditions are somewhat different from those found in the rest of the States. Excepting for the feed secured upon the various National Forests, a majority of the sheep in the State are grazed upon privately owned lands, which naturally adds to the cost of feed. The annual cost of feed for one sheep in the State of California was found by the Tariff Board to be 81 cents, which cost is exceeded in only one other State in the sheep-raising regions, namely, Idaho, where the annual cost was 96 cents. In California comparatively little winter hay feeding is done, the sheep being grazed throughout the summer months in the high mountain regions, from which they drop into the foothill pastures and stubble fields, where they are wintered, returning to the National Forest ranges in the spring. Where the owners lease land for grazing purposes the prices paid are rather high, but the feed secured is unusually good, especially in the wheat-growing regions, where, after the crop is taken from the lands, a heavy growth of weeds and vines follows, furnishing a very high-class sheep feed. California is also somewhat different from the rest of the States in that on account of winter rains and brushy ranges many of the sheep are sheared twice a year, although this practice is growing less every year. This adds to the labor cost and somewhat reduces the wool values.

[1] Senate Document No. 342, 62d Cong., 2d sess.

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At one time California was a large sheep-raising State. In 1880 there were more than 7,500,000 sheep within the State lines. The number has steadily decreased, however, until on January 1, 1915, there were but 2,500,000 sheep within the State.[1] A large number of the California sheep are of the mutton breeds, the owners having found the raising of lambs and heavy mutton sheep for their markets a profitable business. The per capita charge for labor in California is lower than in the other two groups, being 55 cents per head, which includes shearing. The amount of money invested in buildings and improvements on the lands of the sheep owners equals 79 cents per head, while the miscellaneous cost—selling, provisions, dipping, ram charges, and items of that class—equals 99 cents per head. The total annual expense chargeable against one sheep in the State amounts to $2.35, which amount should be increased somewhat, owing to the fact that since the report of the Tariff Board was made the cost of labor and several of the miscellaneous expenses have increased somewhat. In all probability if the annual cost of raising one sheep was $2.35 in the year 1911, it was at least $2.50 in the year 1914. This amount includes liberal allowances for losses and depreciation on both stock and equipment.

The annual percentage of increase is extremely high in California, being exceeded in only two other States in the Union, namely, Oregon and Washington. The increase in California amounts to 76.4 per cent. According to the report of the Tariff Board, the average wool clip for the State is 9.1 pounds, which for the year 1914 averaged for the State 14½ cents per pound. This would indicate that each ewe brought to her owner an average of $1.32 per head for the wool. On the basis of a 76.4 per cent lamb crop, deducting this wool crop from the cost of raising the lamb, we find that the cost to the California sheepman of producing one lamb is approximately $1.55. The average selling price of California lambs in the fall of 1914 was $4 per head. This price, however, represents the "tops," and in all fairness this average should be somewhat reduced to cover the percentage of "cull" lambs found in every band. It is believed that a reduction of 20 per cent should be made to cover this item, which brings the average price received per lamb down to $3.20.[2]

When the present report was made (January, 1915) ewes were valued in this group (California) at approximately $6 per head, and the total investment in sheep, rams, equipment, lands, and im-

[1] Farmers' Bulletin 651, February 6, 1915.

[2] In these and the following sheep figures it should be understood that the Tariff Board covered in their cost estimates all the charges herein enumerated, but did not allow interest on the investment. Investments in lands used in connection with the grazing and feeding of the sheep were covered by allowing the full market value of the feed produced and fed to the sheep.

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provement equaled $10 for each ewe. Upon this basis, the cost of raising one lamb in this group will work out about as follows:

Cost of producing one lamb (California group).

Cost of running 100 ewes, at $2.50 each	$250.00
Deduct value of wool sold	131.95
Net cost of producing 76 lambs	118.05
Cost of producing one lamb equals $118.05 divided by 76 (the number produced by 100 ewes)	1.55

SOUTHWESTERN GROUP.

In the States of Arizona, Colorado, and New Mexico the conditions are somewhat different from those in all the other sheep-raising States. Here very little private land is used by the sheepmen, the majority of them either securing their range upon the National Forests in the summer and the open public lands in winter or grazing them throughout the entire year on the open public lands. Hence the cost of feed for this group is very low, being but 20 cents per head for the year.

The yearly labor costs average 61 cents per head, which includes shearing. This is somewhat higher than in the State of California, owing to the fact that lambing operations and the practice of herding during the entire year require the handling of the sheep in somewhat smaller bands, which necessitates more herders.

The average number of sheep to each 12-month employee in this group of States is 784 head, whereas in California each yearlong employee takes care of 1,225 head.

The miscellaneous costs, which include provisions, losses, depreciation, ram charges, etc., equal 95 cents per head, which is lower than in either of the other groups. The per capita value of the improvements and buildings on land owned by the sheepmen is only 59 cents, owing to the small investment in lands and improvements by the sheepmen of this region. The percentage of increase is only 59.6.

The total yearlong expense of running one sheep, as ascertained by the Tariff Board for this group, is $1.76. Since 1911 there has been a considerable increase in wages and cost of provisions in the States in this group, and also, in order to protect themselves, many of the sheepmen concerned have found it necessary to purchase lands upon which to winter their sheep, which has added to the per capita cost. In all probability, at the present time the annual cost of running one sheep in this group is not far from $2 per head. The average shearing for this group is 6.8 pounds per head, while the average

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selling price for 1914 was 14.3 cents per pound. A large majority of the sheep ranged in this region are of the Merino blood, although in recent years rams of the mutton type have been introduced in some sections. It is, however, a region best suited to the production of Merinos rather than the open wool type of sheep. Based upon these figures, it is apparent that the income from the sale of wool from one ewe brought to her owner an average of 97 cents per head. On the basis of a 59.6 per cent lamb crop, and deducting this wool crop from the cost of raising the lamb, we find that the cost to the southwestern sheepman for producing one lamb is about $1.71. The average price received for southwestern lambs in the fall of 1914 was $3.27. Including prices received for "culls," this average should be reduced to about $2.80.

When the present report was made (January, 1915) the value of range sheep in this group was approximately $4.50 per head and the total investment (sheep, rams, equipment, lands, and improvements) equaled $6.50 per ewe. (See footnote, p. 45.) Upon the foregoing basis the cost of raising one lamb in this group will work out about as follows:

Cost of producing lambs (southwestern group).

Cost of running 100 ewes, at $2 each	$200.00
Deduct value of wool sold (delivered at nearest railroad shipping point)	97.24
Net cost of running ewes	102.76

With an average of 60 lambs raised to each 100 ewes, the cost of producing one lamb is $102.76 divided by 60, which equals $1.71.

NORTHWESTERN GROUP.

This group covers the States of Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming. In these States the majority of the lambs raised are of the mutton type, the ewes being of Merino foundation.

The average weight of fleece is 7.4 pounds, with an average selling price in the region for the year 1914 of 15 cents per pound.

The labor cost in this region is higher than in any of the other groups, being 65 cents per head, while the cost of feed, 55 cents per head, is somewhat less than in the State of California. The miscellaneous cost, which includes provisions, losses, depreciation, etc., is $1.05 per head. In this group the sheepmen have several items of expense not found in other regions, which swell their miscellaneous costs considerably. The investment in buildings and improvements is extremely high in this region, being $1.05 per head, which is due to the fact that on account of the extremely cold winters and often backward springs the majority of the sheepmen have found it neces-

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sary to provide themselves with lambing sheds, feeding pens, and other equipment of this kind which is not required in either of the other groups, and adds materially to the cost of operation.

The total expense for running one sheep one year in this region in 1911 was $2.25. As in the other groups, it is certain that the cost of labor and provisions is now (January, 1915) somewhat higher than at the time the Tariff Board investigated the industry, although as against this the cost of leased lands for sheep-grazing purposes as well as hay for winter-feeding purposes has, owing to certain peculiar factors, been slightly reduced. If the average cost of running one sheep in these States in 1911 was $2.25, it is probable that at the present time the per capita cost is approximately $2.40.

In this group the number of sheep which one yearlong man can take care of is higher than the other groups, being 1,334 head. Were it not for this increased number of sheep for each man, the per capita cost in this region would be considerably higher than it is.

Owing to the care which is given the sheep in this region during the lambing period, the lamb crop is much higher than elsewhere in the West, excepting in the State of California. The average for the group is 70.9 per cent. The average price received for lambs produced in this region in the fall of 1914 was about $3.85 per head. This average included both "tops" and "culls."

When the present report was made (January, 1915) the value of range sheep in this group was approximately $5, and the total investment in sheep, rams, equipment, lands, improvements, etc., equaled $12 per ewe. Upon the foregoing basis the cost of raising one lamb in this group will work out about as follows:

Cost of producing lambs (northwestern group).

Cost of running 100 ewes, at $2.40 each	$240.00
Deduct value of wool sold from 100 ewes	111.00
Net cost of producing 71 lambs	129.00
Cost of producing one lamb ($129 divided by 71, the number of lambs produced by 100 ewes)	1.82

SUMMARY.

CATTLE.

In arriving at cost of production, market value was charged for all feeds used, and a liberal charge was allowed for cost of handling the stock, in order to take care of the items of cost for money invested in land, water, improvement, and equipment used in connection with the production of live stock.

Liberal charges were allowed also for bull service, depreciation of cows, loss of cows at market value, and other natural losses. A charge for taxes at the average rate for the State was included.

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FIG. 1.—SHEEP HERDED AND GRAZED UNDER THE "MASS" METHOD.

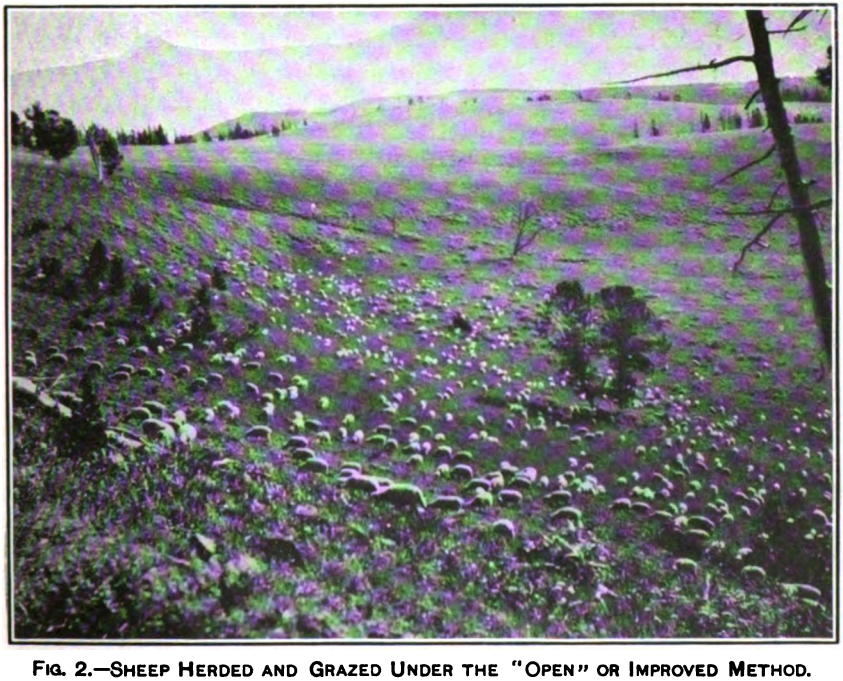

FIG. 2.—SHEEP HERDED AND GRAZED UNDER THE "OPEN" OR IMPROVED METHOD.

Through improved methods of handling sheep the carrying capacity of the ranges can be greatly increased.

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On this basis the cost arrived at for the production of yearlings in Arizona from average figures given is $19.45, and from data furnished by one large outfit, $15.43; for California, $27.51; for Colorado, $30.47; for Idaho, $31.37; for Montana, $32.89 in the main feeding sections and $26.40 in the range section of eastern Montana; for Nevada, $31.25; for New Mexico, $18.30; for Oregon, $31.13; for Utah, $31.46 in the feeding sections and $19.08 for the range section of southern Utah; for Washington, $33.45; for Wyoming, $31.88, average figures, and from special figures furnished by one large outfit, $25.75.

The cost arrived at for the production of a 2-year-old in Arizona is $25.25 from average figures, and $20.30 from special data furnished by one large outfit; for California, $40; for Colorado, $43.31; for Idaho, $45.12; for Montana, $47.90 from average figures, and $35.10 for the range section in eastern Montana; for Nevada, $44.46; for New Mexico, $25.85; for Oregon, $45.70; for Utah, $44.68 for the feeding sections, $24.35 for southern Utah; for Washington, $50.54; for Wyoming, average $46.18, and from a special report of a large outfit, $35.29.

These figures may appear too high, but it should be remembered that they include reasonable profit on farm or ranch products used, reasonable compensation to the owner for looking after his stock, and liberal allowance for loss, depreciation, bull service, and taxes. The net balance between cost of production and sale price represents net interest-profit on money invested in the breeding stock. Granting that the costs given are conservatively high, it is believed that for sections of the West where winter feeding is practiced the man who contemplates substituting live stock for other forms of agriculture should figure on a cost of approximately $30 for the production of a good yearling, and $45 for the production of a good long 2-year-old—this cost to include labor, market value of feeds, taxes, loss, bull service, and any depreciation of breeding stock. In sections of these same States where only a part of the stock is fed in winter the cost of producing a yearling may be set at approximately $25, and of a 2-year-old at $35. In the range sections of the Southwest the cost of producing a yearling may be set at $15 to $19, varying greatly with the number of calves per 100 cows, and the cost of producing a long 2-year-old at about $20 to $25.

The average weight given for a 2-year-old steer in the feeding sections is 960 pounds. At $45 as the cost of production, the cost per pound is about 4.6 cents. For Arizona and New Mexico the average weight of a 2-year-old steer is given as 775 pounds. At $25 for production the cost per pound is a little over 3.2 cents. For the Southwest, hazard due to the exceptional loss in time of prolonged drought is not fully covered in the above costs.

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SHEEP.

The report of the Tariff Board on the cost of raising sheep was so complete that it was deemed unnecessary to make a duplicate study. The Tariff Board figures, with such modification as seems necessary to bring them down to 1914, are therefore used.

For California the annual cost of maintaining one sheep is given by the Tariff Board, for 1911, as $2.35. It is believed that this figure should be increased to $2.50 to cover increases in labor and miscellaneous costs since 1911. Using this figure and including other items as given in the Tariff Board report, the cost of producing a lamb in California is $1.55.

In the States of Arizona, Colorado, and New Mexico the year-long expense for running one sheep is given by the Tariff Board report as $1.76. Increase in cost of running sheep since 1911 justified an increase of this item to $2. Using this figure with other items as given by the Tariff Board report, the cost of producing a lamb in these States is $1.71.

In the northwestern group of States—Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming—the cost of running one sheep for one year, it is believed, has advanced from $2.25, as given by the Tariff Board for 1911, to about $2.40 for 1914. On this basis the cost of producing a lamb in this group of States in 1914 is $1.82.

The foregoing figures make a liberal allowance to cover loss and depreciation and to provide for interest on capital invested in land, improvements, and equipment and include wool at market price. Consequently, the net interest-profit is the difference between cost of production and selling price.

DIGEST, BY STATES, OF THE SCHEDULES RECEIVED FROM STOCKMEN THROUGH THE FOREST SERVICE AND FROM COUNTY CORRESPONDENTS THROUGH THE BUREAU OF CROP ESTIMATES.

The answers received in the individual schedules from stockmen and county correspondents were first tabulated and then studied by States. The following pages give a digest of the information, comments, and conclusions, by States. They are here appended for reference in case of questions relative to the general discussion and conclusions given in the foregoing report or when more detailed information is desired relative to any section of the territory under consideration. These schedules were also supplemented by many full and careful reports from Forest officers in close touch with the range situation.

The figures on total live stock in 1910 and 1914 are taken from the "Agricultural Outlook," issued by the United States Department of

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Agriculture, February 7, 1914 (Farmers' Bulletin 575). Figures on unreserved and unappropriated public lands are taken from Circular No. 335, General Land Office, July 1, 1914.

ARIZONA.

Cattle in Arizona:		
1910 census		825,000
January 1, 1914		776,000
Decrease	per cent	6
Sheep in Arizona:		
1910 census		1,227,000
January 1, 1914		1,601,000
Increase	per cent	30
Unreserved and unappropriated public land in State July 1, 1914	acres	36,958,749

CHANGE IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—Taking the State as a whole, the cattle seem to have decreased by about 49,000 head, a loss of approximately 6 per cent since 1910. The major portion of this loss appears to have been in the southern tier of counties, where, in one of the most densely stocked areas, the Sulphur Spring and San Simon Valleys, the settlement of the open ranges during the last few years has made such serious inroads upon the range as practically to drive out of business several of the larger companies and greatly to restrict open range cattle operations. The only part of the State showing an actual increase in numbers is in the northern central part in Coconino County, where, owing to improved range conditions, with a considerable change in holdings from sheep to cattle, an increase of between 7 and 10 per cent in the number of cattle is noted. In these changes the figures submitted by the stockmen and those from the county schedules, with a few exceptions, are fairly comparable.

Sheep.—The 30 per cent increase in the number of sheep in the State shown by the census reports does not seem to be borne out by the schedules which have been received in this investigation. There has undoubtedly been an increase in the number of sheep in the extreme northeastern part of the State, covering the Navajo Indian Reservation and the northern parts of Navajo and Apache Counties; also, in the north-central part, the county of Coconino shows an increased number of sheep. The average increase, however, for these areas as shown by our schedules indicates that the increase is under 10 per cent, which, from personal observation and rather intimate knowledge of the conditions existing, is believed to be more nearly correct than the 30 per cent increase shown by the census reports.

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Homesteaders.—Taking the State as a whole the settlement of the land by homesteaders has reduced the available grazing areas about 6.7 per cent, according to the figures submitted by the stockmen, while those from the county correspondents are exactly double that, or 13.4 per cent. This settlement is scattered very generally over the entire State, but by far the largest has been in the county of Cochise in the San Simon and Sulphur Spring Valleys heretofore mentioned. The figures indicate that as a result of this agricultural settlement the number of cattle has been decreased about 4.2 per cent, and the number of sheep about 9.2 per cent. This decrease reported in the number of sheep is doubted, for the reason that in the regions where agricultural settlement has been the heaviest no sheep grazing has ever been carried on, and in the actual sheep grazing counties what little agricultural development there has been has undoubtedly increased rather than decreased the grazing of sheep in that vicinity.

Change from beef to dairy stock.—There has been no noticeable change along these lines anywhere in the State. In the Salt River Valley, owing to the erection of a number of new creameries, the dairy business has made some advances, but it has been a direct increase rather than a transfer from beef to dairy stock.

Deterioration of the range.—Broadly speaking, there has been no very decided further deterioration of the range during the last 10 years. As a general thing, the schedules indicate no particular change, and some report positive improvement. Almost universally the schedules indicate that the present carrying capacity of all the ranges could be greatly improved through some governmental control of the ranges which would bring about regulated grazing and an improvement or development in water supply. Almost uniformly the schedules indicate that on the ranges within the National Forests the improvement in grazing conditions has been marked and their carrying capacity greatly increased, while their use by the various stockmen is far more satisfactory than under the old conditions. Throughout the State the ranges are used the year round, little or no feeding being done excepting for very short periods in the spring. If the cattle are extremely weak and hay can be obtained at reasonable prices a few of the cows are fed a little hay to carry them through the dangerous period of the season. This feeding, however, is not at all general and probably does not cover more than 1 per cent of the total.

Better grade of stock.—In the last 10 years there has been a steady improvement in the class of live stock on the ranges in Arizona This is especially true of the cattle, a considerable advance having

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been made in the class of bulls used upon the range. There is, however, still room for improvement along this line all over the State. The average value of the bulls used is $82 per head, the lowest in all the 11 States studied. If Arizona would prohibit the use of other than pure-bred or registered bulls on the ranges an almost immediate improvement in the weight and value of range cattle would be noticed.

Weight of steers.—The average weight of 2-year-old steers sold direct from the range or pastures is 774 pounds; for 3-year-old steers, 935 pounds. While these average weights are materially lower than the weights reported in some of the northwestern States, it should be remembered that the steers shipped from fully 75 per cent of the Arizona ranges are sold in the early spring as feeders to be sent to the northern ranges and the corn-belt farms for fattening. The majority of the steers shipped from the Forest ranges in the northern part of the State are generally sent direct to market for immediate slaughter, and the Arizona weights under these conditions compare favorably with the weights of the same class of animals shipped from the northern ranges.

POSSIBILITY OF INCREASING NUMBER OF STOCK IN THE STATE.

Public ranges.—Practically all the available range in Arizona is at present fully occupied by live stock of one class or the other. This includes the National Forests, the open ranges, and the Indian reservations. The area necessary for one cow for 12 months is estimated at 34.8 acres by the Forest Service reports, while the figures of the Bureau of Crop Estimates are 21.4. Taking the State as a whole, 35 acres to one cow is about right.

In the southwestern and western portions of the State there are large areas which under some plan of Government control would carry a very considerable number of cattle if some development of water for stock purposes could be secured. At present, however, these ranges are practically unused, owing to the fact that there is little or no incentive to the individual stockman to develop water at a very considerable expense when he has no guaranty that the ranges about the watering place will be occupied by only his own stock. Practically every individual reporting on the possibility of increase states that the range in his vicinity could be made to carry more stock if it were placed under Government control, many of them referring to the Forest Service methods as being satisfactory and adaptable to these areas. One well-known stockman referring to this matter states that the only way he can protect his range from the encroachments of migratory herds, both cattle and sheep, is to

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keep it practically overgrazed all the time so that there will be nothing on the range which will attract the stock of other persons. None of the schedules received make any estimate as to the probable percentage of increase which these changes might bring about, but it is safe to estimate that taking the State as a whole the number of cattle in Arizona could be increased under some form of range control not less than 30 per cent, while an increase of perhaps 10 per cent in the sheep would be about all that could be expected for that class of stock.

Increase from farms and new settlers.—The opinion expressed in a majority of the schedules is that there will be some increase in the number of stock upon the farms in the State. This will be due, first, to the natural turning of the settlers to live stock as a means of increasing their income and utilizing the rough forage now produced upon their claims. Second, the present high prices of all kinds of live stock will encourage stock raisers to increase their numbers and retain their "she stock" for breeding purposes rather than to fatten them for market. Taking the State as a whole, it is probable that from the several factors mentioned there will be within the next 10 years an increase of fully 15 per cent in cattle and not to exceed 10 per cent in sheep.

Calf crop.—The estimated number of calves born for each 100 head of breeding cows on the ranges in the State is 57. The number of bulls used to the 100 cows is six. This average is not believed to represent the true facts because the schedules had mainly been received from the better class of stockmen, who believe in having a sufficient number of bulls in all cases. It is doubtful, however, if, taking all the owners into consideration, the number of bulls on the range will average more than three to the 100 cows. It is believed that this accounts for the wide variation between the number of bulls used and the comparatively small calf crop. The low average value of the bulls indicates that the stockmen of Arizona can also materially increase their beef output by using a higher class of bulls.

The Arizona sheepmen have shown good judgment in breeding up their herds, and within the last 10 years there has been a marked increase in both the weight of the lambs and the wool clip.

COSTS.

Labor costs.—The reports of the labor cost involved in handling range cattle are fairly uniform from all parts of Arizona, the average being $2.43. This, of course, varies with the number of animals handled, some individuals and companies whose herds number thousands reporting that the per capita labor cost is not in excess of 50 cents, while men who have from 300 to 500 head estimate it

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at from $3 to $4 per head. For these reasons the average as shown is believed to be somewhat in excess of the true labor cost, and probably a labor cost of $2 per head would be more nearly correct. The Tariff Board gives the annual labor cost of handling sheep, including shearing, as 79 cents.

The cost of feed for range animals in Arizona is, with one exception, the lowest of all the States reporting, being $1.16 per head per year. This is due to the fact that the ranges, except in extreme cases, are used the year round and very little winter feeding is practiced. The major item of this cost is covered by the grazing fees charged by the Forest Service, for which the average yearlong charge is 48 cents per head. Many of the reports state that outside of this Forest Service charge the feed cost on the open range is practically nothing. Considering the very small number of cattle that are fed hay, it is believed that this rate of $1.16 is somewhat in excess of the actual money cost for feed for one animal during a year, and that taking the average herd of range cattle throughout the State the feed cost will not exceed 75 cents. The report of the tariff board shows that the average annual cost for feed of all kinds consumed by one sheep in Arizona is 15 cents, which undoubtedly is very close to the cost of such feed at the present time.

Interest.—The average rate of interest throughout the State is shown to be 9.9 per cent. No rate below 8 per cent is reported, and the rate in the range counties is invariably above 10 per cent, so that taking the range industry by itself the probabilities are that very few if any loans are secured by range cattlemen at rates less than this average.

CALIFORNIA.

Cattle in California:		
1910 census		2,077,000
January 1, 1914		1,929,000
Decrease	per cent	7.1
Sheep in California:		
1910 census		2,417,000
January 1, 1914		2,551,000
Increase	per cent	5.5
Unreserved and unappropriated public lands in California July 1, 1914	acres	20,902,752

CHANGES IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—Acoording to the schedules from stockmen, the number of cattle on the range in California has decreased 11.7 per cent since 1910. Schedules from county correspondents show an average estimated decrease of 9.2 per cent. It may therefore be concluded that cattle on California ranges have decreased 10 per cent in number since 1910. In northern Kern, Kings, Tulare, eastern Fresno, Inyo,

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eastern half of Madero, and Mariposa Counties there has been an average increase of 6 per cent; in Sutter, Colusa, Glenn, Butte, and Plumas Counties an increase of 6 per cent; in Del Norte, Humboldt, Siskiyou, and Trinity Counties an increase of 8 per cent. This increase is within territory either in National Forests or largely range land adjoining National Forests. The remainder of the State, except Alameda and Amador Counties, shows a general decrease.

Sheep.—The schedules from stockmen show an estimated decrease of 12 per cent in sheep since 1910, while those from county correspondents show an average decrease of 22 per cent on the California ranges since 1910. These reports are not in accord with the Department estimates of February 7, 1914, which show an increase of 5.5 per cent. It is believed, however, that the number of sheep on ranges has actually decreased since 1910 probably 15 per cent for the State as a whole. The decrease is general for the State except for a narrow strip in the east-central part along the California-Nevada line.

FACTORS RESPONSIBLE FOR THE CHANGES.

Homesteaders.—It is estimated that approximately 7 per cent of the range lands of the State have been homesteaded within the last 10 years, and that this settlement has decreased the number of cattle 5 per cent and the number of sheep 10 per cent. Approximately 75 per cent of the new settlers are not raising live stock over and above necessary work and milch animals, and the land taken means a considerable decrease in the range, in addition to settlement interfering with former large stock interests.

Change from beef to dairy stock.—The total schedules for the State indicate an appreciable change from the beef type to the dairy type of stock. The county schedules indicate that dairying has increased, especially in the range sections adjoining the San Joaquin and Sacramento Valleys, and in the northwestern corner of the State. Elsewhere throughout the range territory of the State there has been but a slight increase in dairy stock. Approximately 30 per cent of the reports state that the change to dairy breeds has reduced the output of beef animals. While it is believed that the change has resulted in a slight decrease of beef production, it would not amount to more than perhaps 1 or 2 per cent. The main effect has been an increase in total number of stock.

Deterioration of range.—The schedules from stockmen show an average estimate of 21.2 acres as the area necessary to support a cow for the average season of 9.5 months. The county schedules give 13 acres as the average acreage per cow for 9.5 months. For the foothill range in pastures 13 acres is about right, but for the State as a whole even 21.2 acres is considered too low. Much of the brushy

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Forest range requires 30 acres per cow for a 5-month season. The average area per cow for 9½ months is thought to be about 25 acres.

The majority of the schedules state that this acreage is higher than 10 years ago—that is, the ranges have decreased in carrying capacity. Schedules from stockmen place the decrease at 7.84 per cent; county correspondents place it at 2.6 per cent. Considering the effect of homesteading the best lands, incoming of brush, severe droughts, and overgrazing, it is believed that 7.84 per cent decrease is not too high. Twenty-five per cent of the schedules from stockmen give an average estimated increase of approximately 20 per cent in carrying capacity due to better management of range and improved methods of handling stock. This improvement applies largely to National Forest range. The average decrease reported is approximately 30 per cent. While some of the reported decreases apply to National Forest ranges, where brush and timber under protection are shading out grass, the large majority apply to the public domain and private range.

The reasons given for increase in carrying capacity are (1) better management of the range under regulation, and (2) improved methods of handling the stock. The average 20 per cent increase for reports of this character is of interest in showing the possibilities of proper management.

The reasons given for decrease are (1) overstocking; (2) prolonged droughts; (3) fencing up areas of choice range; (4) the incoming of brush and timber, which reduces the total area of usable range and decreases the forage on what is left. By far the majority give overgrazing and bad management as the cause of deterioration.

To summarize this topic, it may be said that more than half of the range, mainly public domain and private holdings, has deteriorated an average of 30 per cent in carrying capacity during the last 10 years as the result of overgrazing; that a small per cent has not changed; approximately 25 per cent has increased by an average of 20 per cent in carrying capacity, due to regulation and improved handling of stock; and that the average for the State is a decrease of about 8 per cent.

HOW THE NUMBER OF LIVE STOCK IN THE STATE CAN BE INCREASED.

Public range.—A few local areas of both summer and winter range, mainly summer range, are reported not used on account of lack of water, inaccessibility, an excess of brush, and, in one instance, lack of stock. A full use of range at present unused would not, however, make an appreciable increase in the number of stock in California.

The schedules from stockmen were almost unanimous in stating that the range lands now occupied could be made to carry more stock, but only a few of them gave figures for the estimated increase.

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California forests on the west slope show a gradual increase in reproduction of timber and brush under adequate fire protection with some decrease in range. On the other hand, further improvement in management and development will result in an increase of probably 10 per cent in carrying capacity for the more open lands. The outside ranges undoubtedly can be improved by control and better management. The probable increase in carrying capacity of the range lands now being used should not be put at more than an average of 15 per cent.

More stock on farms and homesteads.—On this point the average of the schedules shows an estimated increase of 17.2 per cent in the case of cattle and 6.7 per cent in the case of sheep. It is safe, therefore, to assert that in California an increase in cattle, not to exceed 15 per cent, may be expected, and perhaps a slight increase in sheep. These estimates are, of course, based on the assumption that there will be no change in management of public lands.

While a few of the schedules base the estimated increase on anticipated range control and better range management, the great majority state that farms and ranches are at present understocked. As a result of high prices the farmers and settlers will turn to live stock, the increase will be saved, more hay will be produced as a result of general farm development, there will be generally greater care and economy in the utilization of pastures and hay, and beef and mutton feeding, as well as winter feeding of stockers, will increase. It is believed that this represents the true situation, and if so the whole question hinges on continued high prices rather than development of new areas or a tendency to use live stock as a fundamental requisite in a successful system of agriculture. Until this last principle is recognized, it will be difficult to have a stable continuous increase in live stock proportional to increase in population.

It is estimated that approximately 3 per cent of the remaining range lands are suitable for cultivation. Therefore, this factor can hardly have any material aggregate effect on production of meat. The subtraction of such lands from the range will eventually be compensated by the production of small numbers on the homesteads.

Better breeding animals and larger increase.—Better control of stock and range, general tendency toward better care of stock, and increased necessity for attention to the individual animal as available range decreases and cost of production per animal increases will result in improvement of the average animal and increase in the percentage of calf crop.

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COLORADO.

Cattle in Colorado:		
1910 census		1,128,000
January 1, 1914		1,135,000
Increase, less than 1 per cent.		
Sheep in Colorado:		
1910 census		1,426,000
January 1, 1914		1,668,000
Increase	per cent	17
Unreserved and unappropriated public lands in Colorado, July 1, 1914	acres	18,899,441

CHANGE IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—According to the census reports, there has been a slight increase in the number of cattle in the State, amounting to 7,000 head. An analysis of the census figures shows that this increase has been in the number of milch stock and that, so far as the range is concerned, there has been an actual decrease of range animals. The greater portion of this decrease is naturally in the open plains region east of Denver. Here the settlers have made tremendous inroads into the open range, and there is a wide difference of opinion as to whether or not the taking up of this range by settlers under the dry-farming system will prove permanent. At the present time the conditions are rather unsettled, but from a study of the schedules received in this investigation there seems to be a general feeling that the majority of these dry farmers will eventually get a foothold and improve their farms, so that in time they will naturally turn to live stock and thus increase the number of cattle and sheep.

In the northwestern corner of the State, in the counties of Montrose and Rio Blanco, there has been a falling off in the number of cattle of from 5 to 20 per cent. Here the loss is ascribed to the advent of the settler and his encroachments on the range and also to several unusually dry seasons which have forced the sale of a great many cattle that otherwise would have been kept for breeding purposes.

In the southwestern corner of the State, in Gunnison, Saguache, San Juan, Montezuma, and several other counties, the schedules indicate an increase in the number of cattle of from 5 to 20 per cent. This appears to be due to the excellent condition of the range within the National Forests in that region and the Government control over these ranges, which has restrained the migratory stock so that the local settlers have had more favorable opportunities for using the range about their homes. It is doubtful, however, if the increase is as great as that shown by the schedules.

Sheep.—There has been a very considerable increase in the number of sheep in the southwestern corner of the State and also in Routt County. The increase in the southwestern part of the State is doubt-

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less due to improved conditions in the National Forest ranges and the development of the pea-feeding industry in the San Luis Valley tributary to several of the Forests. With the exception of one or two small areas, the rest of the State shows a decrease of from 5 to 25 per cent in the number of sheep. It is believed that considering all the factors obtainable there has been an increase in the number of sheep in the State of probably not over 10 per cent.

FACTORS RESPONSIBLE FOR THE CHANGES.

Taking the State as a whole, the indications are that the homesteaders have taken up about 15 per cent of the open range land in the last 10 years. The advent of these settlers seems to have temporarily decreased the numbers of both sheep and cattle from 4 to 10 per cent, but the majority of the schedules state that the new settlers are already turning to live stock, and eventually the number of stock in the State will be increased on that account. While the census figures indicate some increase in the number of dairy cattle in the State, the schedules are very emphatic in the statement that settlers as a general rule are not raising dairy stock, but find it more profitable to raise beef cattle or, in some instances, sheep.

Deterioration of the range.—The majority of the schedules show that the open range in the State of Colorado has not materially decreased in its carrying capacity during the last few years, while in some parts a positive improvement is reported. The average acreage required for one cow for the seven months' period is estimated at 18 acres by schedules from stockmen and 15 acres by those from county correspondents. Considering the character of the land left open, it is quite certain that it will require fully 25 average acres to carry one cow. A large number of the individuals reporting believe that the range can be improved in several different ways. Many state that Government control such as is in force on the National Forests would greatly improve matters. Others believe that the prairie dogs now infesting thousands of acres of these ranges should be killed off. Still others mention migratory sheep as being the cause of the overgrazed condition of some of the ranges. Several look forward to an ultimate improvement in the stock business because they believe that as fast as the settlers obtain patents to their land they will sell it to the stockmen, who will thus place more stock on the ranges than they can care for at present. All these things point to proper control through some strong central authority as the only means for restoring the range to something of its old condition.

Better grade of stock.—The value of the bulls used in the State of Colorado averages $131.90, which is much higher than in the States to the south and southwest. In the western part of the State especially the stockmen have in recent years done much to build up

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the grade of their herds, and the hay-fed steers that are turned off from the hay-feeding ranches on the western slope are a very superior class of beef animals.

Weight of steers.—The average weight of steers turned off from the ranges in the State is 883 pounds for twos and 1,084 pounds for threes. The reports coming from the western part of the State, in the mountainous region, indicate a higher average than these, but the general average for the State is somewhat reduced by the lower weights of the steers sold from the open range areas east of Denver, the most of which go to the market as feeders, not as fat stock.

POSSIBILITY OF INCREASING THE NUMBER OF STOCK IN THE STATE.

While practically all the available range in the State outside the National Forests is at present fully occupied either by sheep or by cattle, much of it is in such a condition that with some form of Government control its carrying capacity could undoubtedly be greatly improved. The ranges on the National Forests have greatly improved since they were placed under supervision, and their carrying capacity is increasing year by year. There is room in nearly all the National Forests in the State for more cattle and sheep than are now grazed upon them. The difficulty of filling up these ranges lies in the wintering of the animals. The ranges in the National Forests are available for not more than five or six months of the year, and the only means by which the number of stock grazing upon them can be increased will be through (1) development of irrigated lands in the vicinity of the Forests where hay and other forage can be raised with which to carry the animals through the winter, and (2) improvement of the open ranges. In the next 10 years the schedules from stockmen estimate the increase in cattle at 14 per cent; in sheep, 39 per cent. The schedules from county correspondents estimate the increase in cattle at 33 per cent; in sheep, 10 per cent. An increase of 20 per cent in cattle and 15 per cent in sheep is a conservative estimate for the two classes over the entire State.

Calf crop.—The estimated number of calves born for each hundred head of cows is 69.3 per cent. The estimated number of bulls used to the hundred cows is 4.4, which is approximately correct.

COSTS.

Labor cost.—The schedule figures showing the labor cost involved in handling range cattle in the State are reasonably uniform, the majority ranging from $2 to $5, with an average cost throughout the State of $2.76. This probably is a little higher than the actual cost to the owners, owing to the fact that there are not many large herds

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within the State, the majority of the herds being small, and upon such herds the per capita labor cost is always rather excessive. The report of the Tariff Board indicates that the labor cost for sheep in the State, including shearing cost, is 60 cents per head, and the cost of feed for the year 26 cents per head. It is probable that both of these items are somewhat higher to-day than they were in 1912, when the report was made, especially the feed cost, which probably to-day will average 30 cents per head. The Colorado sheepmen are feeding their sheep more generally to-day than they have in the past, which adds considerably to the cost.

Interest.—The average annual rate of interest charged in the State on stock loans is 8.8 per cent. A few reports were given for as low as 7 per cent, but these were undoubtedly extreme cases and probably the average shown is approximately correct.

Depreciation.—The average depreciation on cows is estimated at 5.3, and the average depreciation on bulls at 18.3 per cent. In figuring the depreciation on cows, as in other States, the majority of the stockmen maintain that there is no depreciation loss, the animal being sold as beef for her full cash value. It is not believed, however, that this will hold good for the entire State, and the depreciation established for the two classes of animals is undoubtedly very nearly the true figure.

IDAHO.

Cattle in Idaho:	
Census of 1910	454,000
January 1, 1914	466,000
Increase—per cent	3
Sheep in Idaho:	
Census of 1910	3,011,000
January 1, 1914	2,981,000
Decrease—per cent	1
Unappropriated and unreserved lands in Idaho, July 1, 1914, acres	16,342,781

CHANGES IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—Schedules from stockmen show an average decrease of 15 per cent in the cattle on Idaho ranges since 1910; the schedules from county correspondents show an estimated increase of 4.3 per cent. A study of the schedules by units shows the decrease to be general, except in Bonner and Ada Counties; in the northern half of Boise County, Custer County, and Fremont County, in the central part of the State; and in Gooding County and around the Minidoka Forest, in the south-central part of the State. The change in Fremont and Gooding Counties is due, however, more to increased dairying and cattle on farms than to cattle on the range. Development here has been intensive, transforming waste land into irrigated fields. The

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estimate of 4.3 per cent increase may represent the total of the State fairly well, owing to increase in dairy cattle, but a decrease of 10 per cent will probably be a conservative estimate for cattle on ranges.

Sheep.—The schedules show an estimated average decrease of 11.8 per cent in the sheep on ranges in the State since 1910. They also attribute an average decrease of 12.9 per cent in sheep in the State to homesteading. Only Bonner, Clearwater, Custer, Lemhi, Twin Falls, and Canyon Counties show a rather marked increase. In these counties a great deal of mountain range has been opened to sheep grazing within recent years by developing roads and trails and securing arrangements for feeding in transit during the summer months. The former big sheep section of the State shows a decided decrease in the number of sheep produced. It is believed the average estimated decrease of 11.8 per cent is low rather than high.

FACTORS TO WHICH THE CHANGES ARE DUE.

Homesteading.—The county correspondent schedules show an average estimate of 42.2 per cent of range lands homesteaded within the last 10 years. Schedules from stockmen give 25 per cent as an average estimate. Twenty-five per cent is considered the more nearly correct, owing to the large acreage of rough mountain territory remaining in the State. It is estimated that this homesteading factor alone has resulted in a decrease of about 10 per cent in the number of cattle and 12.9 per cent in the number of sheep. Without doubt this has had more to do with the decrease than any other single factor. In the southern half of the State public domain range to-day is, comparatively speaking, almost a thing of the past. The fact that the decrease in live stock due to homesteading exceeds the total estimated decrease is explained by the fact that the opening of new ranges in northern Idaho has resulted in an increase, and, further, the development of irrigation on formerly waste lands in certain counties of central Idaho has resulted in an increased production of hay and a consequent increase in live stock. The majority of the homesteaders and new settlers, however, are not yet raising live stock over and above the necessary work and milch animals, although in the northern part of the State, where homesteads are largely for live stock purposes, and also in a few irrigated sections, many settlers are doing so, but for the larger sections, where dry-land farming is predominant, they are not.

Change from beef to dairy type of cattle.—For the State as a whole there has been a marked increase in dairy cattle. This change has taken place largely in the central and north-southern parts of the State—the main irrigated section—and in the extreme north of the

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State. In the northern—that is, the main mountainous region—and in the extreme southern part, there has been no appreciable change. In other words, there has been no change in the main range sections, but an appreciable change in the larger intensive farming sections. The effect of this change upon the total output of beef animals has been a reduction, but not to the extent of the proportionate increase in dairy cattle, owing mainly to the fact that where dairying has increased the dairy cattle are an increase over the former number of cattle, and in part to the fact that the dual purpose cow is still used in some sections of the State where dairying has increased. It may safely be concluded, then, that increase in dairying has resulted in only a slight decrease in the output of beef cattle, and has resulted in maintaining or increasing the output of veal by the selling of calves from dairy herds.

Deterioration of range.—For an average period of 7 months the live stock are grazed on the range. For this period, the average estimated area necessary to support a cow is 18 acres. It is estimated that this average acreage for the State is about 6 per cent higher than that of 10 years ago; that is, a decrease in carrying capacity of approximately 6 per cent. This does not show the actual facts, however. The average of estimates from stockmen shows approximately 30 per cent increase in carrying capacity on National Forest range, and approximately 50 per cent decrease in carrying capacity on the open ranges. This in the main is believed to be about correct, perhaps slightly high on both estimates. It shows the main fact, a considerable increase in carrying capacity under regulated use and a marked decrease without regulation.

The principal reason given for a reported increase in carrying capacity is National Forest supervision. Occasional reports give more precipitation as the cause, others a decrease in number of stock which is in line with regulation. The principal reasons for decrease in carrying capacity are overstocking, especially with sheep, and homesteading of the best range lands. Jack rabbits are given as a partial cause in one section.

Better grade of stock.—In Idaho, as elsewhere, the tendency to give more attention to the individual animal and less to numbers has no doubt worked toward a slight decrease in number, without a decrease in the pounds of meat produced.

HOW THE NUMBER OF LIVE STOCK IN THE STATE CAN BE INCREASED.

Public range.—Throughout northern Idaho there is considerable unused range. There are several reasons for this, the chief reason being a shortage of winter range and a lack of farms and ranches to

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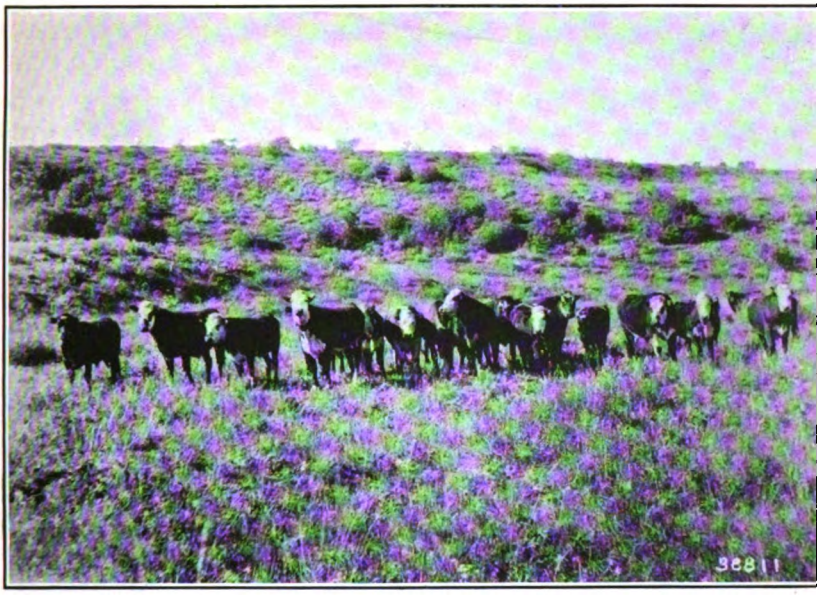

FIG. 1.—GROUP OF 2-YEAR-OLD RANGE STEERS, WHITE RIVER NATIONAL FOREST, COLORADO.

The Colorado stockmen as a rule use bulls of a very high grade.

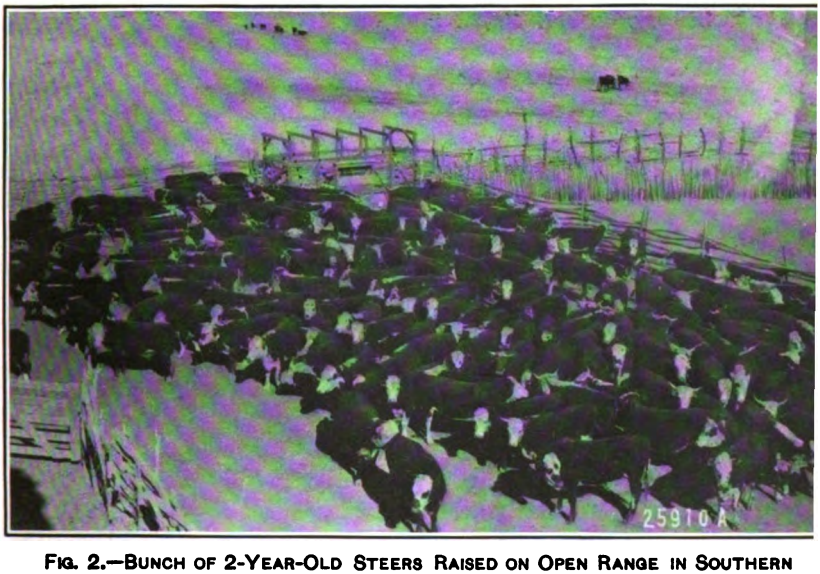

FIG. 2.—BUNCH OF 2-YEAR-OLD STEERS RAISED ON OPEN RANGE IN SOUTHERN NEW MEXICO.

There are many large herds of high-grade cattle in New Mexico.

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grow forage and stock in proportion to the summer range available. Additional reasons are the facts that the unused range is rugged, remote from settlement, and difficult to reach, and that the danger of loss of stock is proportionately great. Of recent years the Forest Service has opened part of the range by necessary trails, roads, and bridges, and has induced sheepmen to ship sheep for summer grazing from congested sections farther west. The more easily accessible portions of this available unused range will undoubtedly be gradually brought into use, but the lack of balance between winter range and forage crop production on the one side, and summer range on the other will make increase in utilization slow and full utilization a remote possibility. A continuation of the present campaign by the Forest Service, with money for development when necessary, is about all that can be done toward further use. Throughout the central and southern portions of the State local areas of both summer and winter range are reported unused because of lack of water. On some areas available water has been fenced by settlers. On the Forests no water has existed. Water development in part is feasible as soon as money is available and there is positive demand for the range. As a whole, it may be concluded that there is a possibility of a small average increase in stock due to development of range at present unused.

Slightly more than 80 per cent of the schedules state that the range in their respective vicinities could be made to carry more stock. Restriction of grazing, Government regulation, revegetation, reseeding, and water development are the primary means cited to bring about the improvement. All of these means are dependent for success upon control of both range and stock. A number of reports suggest clearing off brush and timber; a few irrigation; some say private ownership; in part of the northern territory trails and drift fences are needed; fencing is advocated in a few reports.

Few of the schedules give an estimate of the possible increase. Estimates given vary from 15 per cent to 100 per cent, with an average of 34 per cent. The estimated decrease in carrying capacity of public domain has been placed at 50 per cent; the increase thus far due to Forest regulation has been estimated at 30 per cent. The Forest ranges should increase perhaps 15 per cent through further improvement in vegetation and better handling of stock. The public domain under proper regulation and development should increase eventually 50 per cent, making a possible average increase of perhaps 25 per cent for the State. This increase in neither case would be immediate. It could hardly be reached, under most favorable management, in less than 10 years at best. Lack of regulation means a further decrease on the public domain.

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More stock on homesteads and farms.—The schedules from stockmen show an estimated increase of 7½ per cent in the number of cattle within the next 10 years, while those from county correspondents give an average estimated increase of 41.3 per cent in cattle and 14.5 per cent in sheep within 10 years. The estimate of 7½ per cent increase from stockmen represents more strictly the range and ranch business; the estimate of 41.3 per cent from county correspondents represents the farm end. Probably a safe average estimate for the increase in cattle would be 20 per cent and for sheep 10 per cent.

The reasons given in support of this expectation of increase are many, but they may be grouped into the following main ideas: (1) High prices make live stock more profitable than grain raising; (2) farmers and settlers will have to grow more live stock to make their property pay; (3) a marked increase in the dairy business; (4) development of live stock feeding for beef and mutton; (5) better care of all live stock. Back of all these, except dairying, is the attraction of high prices. The men will grow the crop that produces the most money. One difficulty lies in the fact that many indirect money benefits from live stock have not yet come to mean money value to the land owners. High prices offer an unstable incentive. The effort should be to base the advantages of live stock on farms and ranches on their value in the maintenance of crop fertility and utilization of by-products or secondary products.

It may be pointed out again that approximately 25 per cent of the former range lands have been homesteaded within the last 10 years; and that the majority of the new settlers are not producing live stock over and above their necessary work and milch animals. It is estimated that approximately 10 per cent of the remaining public domain land is suitable for agricultural homestead entry. This estimate is perhaps a little high for the State as a whole. Undoubtedly the settlers of most of these lands will grow a few animals as soon as they can get money or credit sufficient to make the purchase. The homestead must first be developed to some value before money can be borrowed to buy live stock, and even then money on breeding stock is hard to get, so that development of the live stock industry on the dry-land homesteads will be slow.

Better average animals and larger increase.—In Idaho, as elsewhere throughout the range States, there is a possibility of improvement in the average animal, both sheep and cattle, and a possibility of higher percentage of increase. The increase in prices, increase in winter feeding, and lack of range for large numbers, all work toward improvement of the individual animal rather than increase in numbers as a means of increasing net profit. This factor should result in perhaps a 5 per cent increase in the output of beef in pounds.

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MONTANA.

Total cattle in Montana:		
Census of 1910		943,000
January 1, 1914		857,000
Decrease	per cent	9.1
Increase in milch cows	do	39.0
Decrease in cattle other than milch cows	do	13.0
Sheep in Montana:		
Census of 1910		5,381,000
January 1, 1914		4,293,000
Decrease	per cent	20.2
Unreserved and unallotted lands in Montana, July 1, 1914		22,237,660

CHANGES IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—Figures of the Bureau of Crop Estimates (February, 1914) show a decrease of 9.1 per cent in cattle since 1910; an estimate from the State stock commissioners shows a decrease of 26 per cent since 1910; schedules received from county correspondents show an average estimated decrease of 26.3 per cent; and schedules from stockmen and Forest officers show an average decrease of 41 per cent. It appears safe to decide upon an average decrease of not less than 26 per cent in cattle on the range since 1910, as all reports show an increase in dairying. It is of interest to note in this connection that there has been a marked increase since 1912, thus showing an upward tendency.

Sheep.—Figures of the Bureau of Crop Estimates (February, 1914) show a decrease of 20.2 per cent in sheep since 1910; the schedules from county correspondents show a decrease of 42.9 per cent; those from stockmen and Forest officers show a decrease of 42 per cent, and State statistics show a decrease of 37½ per cent. It is safe to conclude that sheep in Montana have decreased approximately 40 per cent since 1910. The decline has been continuous, but most rapid during 1913.

FACTORS RESPONSIBLE FOR THE CHANGES.

Homesteaders.—General Land Office figures for July 1, 1914, place the unreserved and unappropriated lands in Montana at 22,237,660 acres. Schedules from county correspondents show an average estimate of 61.7 per cent of the former range lands homesteaded within the last 10 years; those from stockmen show an average estimate of 40 per cent; State figures show approximately 70 per cent filed on from July 1, 1913, to October 1, 1914. Undoubtedly the Government estimates do not exclude the large area filed on within the last 6 months. It is safe to conclude (1) that the area of former range lands homesteaded in the last 10 years will total approximately 40

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per cent of the range lands including Forests, or 65 per cent of the former range lands outside of the Forests; (2) that the unreserved and unappropriated land in the State is now (January, 1915) somewhat less than the 22,237,660 acres shown by the Land Office figures of July 1, 1914.

Schedules from county correspondents as an average show that this settlement has reduced the number of cattle 18.4 per cent and the number of sheep 46.1 per cent; those from stockmen show an average estimated decrease of 30 per cent for cattle and 37.7 per cent for sheep. These estimates are based on total stock, and it is a fact that settlement has increased the total number of milch cows. It is safe then to conclude that settlement of range lands has reduced the number of cattle on ranges aproximately 30 per cent and the number of sheep approximately 40 per cent the last 10 years.

It is a fact that the open range live stock business, as it was formerly known in eastern Montana, is almost a thing of the past. To date the new settlers have devoted attention primarily to raising wheat and flax. A few, not to exceed one-third, are raising a small number of live stock above necessary work and milch animals. The majority have not been under way long enough to develop the forage, improvements, and credit necessary to live stock production. Wheat and flax bring quick money returns, breeding cattle are much slower, and it takes less ready money to produce a grain crop than to purchase a foundation of live stock. Aside from the reduction of stock due to taking away the land actually settled, the settlement frequently leaves isolated bodies of public land without water and difficult to use.

Change from beef to dairy cattle.—The Department estimates of February 7, 1914, show an increase of 39 per cent in milch cows since 1910. The county correspondents and stockmen report a change from beef to dairy cattle in approximately half the localities of the State. It is probable, then, that dairying has increased at least 30 per cent. Dairying has increased mainly near the centers of population, and the result is an increase in total cattle rather than a reduction in beef cattle equal to the total increase in number of dairy cows. Further, in much of the dry-farming section the dual-purpose cow is still used as the milch cow. The aggregate effect of increased dairying, then, is an increase in total cattle and a slight decrease, probably 1 per cent, in the output of beef.

Deterioration of range.—County correspondents show the average season for grazing to be 9.6 months; schedules from stockmen show an average season of 8 months. It is believed that the county reports include farm pastures, and that, therefore, 8 months is about correct. For this average season the average estimated area neces-

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sary to support a cow is approximately 15 acres. The schedules from stockmen show as an average that this acreage is 9 per cent higher than 10 years ago; those from county correspondents show an estimated increase of 1.2 per cent. Large decreases in carrying capacity are reported for the main stock sections. Increases reported for National Forest range will partly offset the decrease on uncontrolled range. It is concluded, therefore, that the average decrease in carrying capacity of range lands in the State is about 7 per cent. The decrease in carrying capacity is attributed in about equal proportion to overstocking and premature grazing and to the settlement of the best range lands. Increases in carrying capacity reported are attributed to improvement in the management of range and stock. These increases are largely on National Forests or on lands outside the Forests which have been placed under fence. Here, then, as in other States, the estimates show a decrease in carrying capacity on uncontrolled lands and an increase on lands under regulation and improved management. The aggregate effect upon the stock industry has been partly included in the 30 per cent reduction in cattle and the 40 per cent reduction in sheep already attributed to homesteading. There is probably 5 per cent reduction not thus included, but this is offset by the increase as a result of increase in hay crop and winter feeding on the older farms and ranches, which has decreased the demand per animal for range.

HOW THE NUMBER OF LIVE STOCK IN THE STATE CAN BE INCREASED.

Public range.—On the summer range, which is largely in National Forests, it is estimated that there will be little increase of cattle. In the western part of the State it is estimated that perhaps 100,000 more sheep can eventually be cared for, and on the remainder of the Forests in the State it is estimated that eventually a 25 per cent increase in sheep (187,500 head) can be made by complete adoption of improved methods of handling sheep. This means a total estimated increase of 287,500 head of sheep, approximately 7 per cent of the present State production, and no increase in cattle on National Forests. It will probably take 20 years to completely revise methods of handling and accomplish this increase.

Of the schedules from stockmen, 75 per cent state that the range lands could be made to carry more stock. Where the increase is shown in figures it varies from 10 per cent to 50 per cent, with an average of 20 per cent. Taking into account the small number reporting no possibility of increase, the reports from stockmen are interpreted to represent an average estimated possible increase in carrying capacity of approximately 15 per cent for all range lands of the State. This is believed to be conservative.

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The means cited for bringing about this increase are (1) regulation or leasing of public-domain lands, regulation similar to National Forest management being recommended; (2) water development and trail construction; (3) improvement in the methods of handling the stock, including drift fences, salting, fly sheds, herding sheep; (4) reseeding to cultivated forage plants. It is apparent that some form of regulation and long tenure of use is the keynote to the whole situation—this in order to justify construction of improvements and make possible improved methods of handling both range and stock. On National Forests the need for trails and drift fences is gradually being met. On the public lands nothing can be done until the lands are placed under some form of regulation.

More stock on farms and homesteads.—The schedules from stockmen show an average estimated increase of 53 per cent in cattle and 18 per cent decrease in sheep for the next 10 years; those from county correspondents show an average estimated increase of 46.3 per cent in cattle and 14.5 per cent decrease in sheep. In each case the estimates are based almost entirely on the belief that both farmers and homesteaders will raise more cattle, and that present settlement and further settlement will be conducive to cattle production rather than sheep production. The main reasons for expecting these changes are the following: (1) Dry farmers will have to raise stock to make the homesteads permanently profitable; (2) high prices of cattle make cattle production more profitable than grain growing; (3) increase in the production of feed and consequently a necessary increase in cattle to consume it; (4) general development of ranches will be accompanied by growing of more cattle; (5) perhaps part of the present homesteaders will fail on their holdings and will sell them to stockmen, who will make them cattle producing, under fence; (6) increase in dairying among dry farmers.

Continued high prices for beef and somewhat lower proportionate prices for grain will hasten the production of more cattle. The increase will come only gradually at best, however, as it is dependent largely upon the dry farmers. In the majority of cases it takes several years to place a dry farm on a basis suitable to live stock production, both from the standpoint of forage and improvements and of credit. Grain gives a quick money return for small outlay of actual cash, and this is what the dry farmer, as a rule, must have during the period of becoming established. Further, many of them will continue producing wheat and flax until the land becomes nonprofit-producing, because they will not risk a change. It is generally conceded among themselves and among experts, however, that the dry farmer of Montana must eventually get away from the one crop, and that the alternative will be the addition of live stock.

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There is opportunity for small bunches of sheep to utilize waste corners and keep down weeds on fallow land in connection with dry farms as well as the more intensive farms. It is believed that sheep production along this line will be developed and must be developed if mutton and wool production is to keep pace with increase in population. Here, as elsewhere, however, cattle rather than sheep will be used in the early stages of transformation from range live stock production to farm production. Consequently no development of magnitude is expected in sheep production on farms in Montana the next 10 years.

One of the essentials to development of successful live stock production on Montana dry farms is the working out of successful forage crops and the introduction of the silo. Montana winters are cold, consequently stock will need feed for four to five months, and there is little hay grown. If crops can be grown which will be suitable for a ration in combination with straw and grain if necessary, live stock production will mean utilization of by-products now burned or otherwise wasted. A further wise plan will be to parcel out available public-domain range lands and allow fencing, so that the maximum stock can be run at minimum cost outside of the farms in summer.

Summarizing this topic, it is concluded (1) that cattle will increase approximately 45 per cent in Montana during the next 10 years whether action is taken to improve the management of remaining public-domain range lands or not, and that sheep will probable decrease about 10 per cent; (2) that the total increase for the State can be made to reach 50 to 55 per cent by regulation and proper management of the remaining public-domain range lands; and (3) that the main increase will come about by increased production of more stock on the vast acreage of dry lands which has passed to private ownership.

Better breeding animals and larger increase.—Montana produces at present good grade cattle and good grade sheep. Here as elsewhere throughout the range States, however, there is possibility of improvement, both in grade and in natural increase. Development of the stock industry on farms and homesteads, increased cost of production on ranges and farms, increased care of individual animals due to their increased individual value, increasing tendency to market by weight rather than by the head, will all tend toward the improvement of the average individual animal and consequently the whole. These same factors will create sentiment favorable to adoption of suggestions from Government and State experts. It is believed safe to assume, therefore, that the average weight of beef animals now given as 991 pounds for a long 2-year-old steer will

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increase, and that the average calf crop now given as 75 per cent will increase approximately 10 per cent.

NEVADA.

Cattle in Nevada:		
1910 census		450,000
January 1, 1914		459,000
Increase	per cent	2
Sheep in Nevada:		
1910 census		1,155,000
January 1, 1914		1,517,000
Increase	per cent	31
Unreserved and unappropriated land in Nevada July 1, 1913	acres	55,502,439

CHANGES IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—The schedules from stockmen and Forest officers show, for the State as a whole, an estimated decrease of approximately 15 per cent in the cattle on the range since 1910. The schedules from county correspondents show an estimated decrease of 4.3 per cent. This discrepancy is partly explained by the fact that county correspondents are more representative of the farm side, while stockmen are more representative of the larger range interests. Elko County and a smaller area in Humboldt County are the only areas of magnitude showing an increase. Local areas elsewhere report increase, but are overshadowed by other reported decreases. It is safe to say that there has been a decrease of 10 per cent in cattle on the ranges of Nevada since 1910.

Sheep.—It is estimated that sheep in Nevada have increased 20 per cent since 1910. Large increases are reported for the whole eastern part of the State, and in Washoe County, in the western part of the State, while a slight increase is noted in the northern part and little change in the whole central part. Part of this increase is due to the fact that large herds of sheep have in late years been forced to Nevada from adjoining States for winter range. A part of them, therefore, have probably been considered in the estimates for California, Utah, and Idaho. Accordingly, the above variation from the Department estimates of February 7, 1914, seems justified.

FACTORS RESPONSIBLE FOR THE CHANGES.

Homesteaders.—It is estimated that approximately 4 per cent of the range lands have been homesteaded within the last 10 years. (County schedules estimate 5 per cent, stockmen's schedules 3¼ per cent.) The majority of the new settlers are not raising live stock over and above the necessary work and milch animals. A few reports from county correspondents state that live stock above work

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and milch animals is being raised by new settlers, mainly in the counties near the agricultural section around Carson City and in a few localities of Elko and Humboldt Counties. It is doubtful if this small-scale production has yet reached a magnitude which appreciably changes the total figures for the State. On the other hand, it is estimated that the settlement of the lands by homesteaders has decreased the number of cattle about 3 per cent and has had no appreciable effect upon the sheep. The small acreage of homesteads could hardly change the large desert sheep industry. The growing of more hay, however, might result in local increases due to feeding and at the same time decrease the number of range sheep locally. The schedules submitted are so interpreted.

Change from beef to dairy cattle.—On this point all the schedules show a change in the counties cornering near Carson City. This change is no doubt due to the incoming of irrigation agriculture. Elsewhere in the State there has been no appreciable change. The slight change to dairying probably has slightly increased the total stock of the State but has had little or no effect upon the output of beef, as the dairy stock are dairy breeds and not dual-purpose cows.

Deterioration of range.—For the State as a whole it is estimated that an average of 36 acres of the range lands is required to support a cow for the average grazing season of 8.8 months. With two exceptions the schedules from county correspondents state that this acreage is higher than the acreage required 10 years ago. The average estimated increase is 10.1 per cent. The schedules from stockmen show as an average that the acreage necessary has slightly increased. A number report a decrease in acreage necessary, due to National Forests. Considering all factors, it is concluded that National Forest ranges have increased in carrying capacity and public domain ranges have decreased approximately 10 per cent and that the average for the State is a decrease in carrying capacity of about 8 per cent.

This conclusion apparently conflicts with the estimated increase in total stock. The plausible explanations are that the range is more heavily overstocked than formerly; that unwatered ranges are being more fully utilized than formerly; that increase in the amount of hay grown and fed has relieved the ranges; and that the development of the lamb trade and the furnishing of steers to be fed elsewhere has materially reduced the drain on the range for a given number of mature stock. This last item has probably had more to do with the apparent discrepancy than any other.

The main factors cited as responsible for the changes in carrying capacity are overgrazing, especially with sheep, on the public domain, resulting in a decrease in carrying capacity, and regulated grazing,

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resulting in an increase in carrying capacity on National Forests. For the public domain overgrazing is given in all cases of reported decrease in carrying capacity. Here, as in the other States, the data point to regulation of both the number of stock and the methods of managing them as the prime factor necessary in range maintenance.

HOW THE NUMBER OF LIVE STOCK IN THE STATE CAN BE INCREASED.

Public range.—With few exceptions the reports state that the ranges are all in use and fully stocked. Isolated areas throughout the State are reported unused because of lack of water. The desert conditions will probably prevent water development sufficient to secure full use. One report from Churchill County and one from Mineral County show unused range because stock cattle are not available. This no doubt is a temporary condition. As a whole, then, it may be concluded that only a negligible percentage of Nevada ranges which are capable of future use are now unused.

Of the total schedules received, however, a majority report that the ranges of Nevada can be made to carry more stock, and a few report that they can not. The methods cited as a means of bringing about the improvement are, in order of importance, control and regulation of the grazing lands, 16; water development, 18; reseeding or revegetation and killing off sagebrush, 5; killing off wild horses, 1.

Water development includes many suggestions of "drilling wells." On the whole this would perhaps be the only way to secure necessary water, owing to lack of sufficient precipitation for supplying surface water. The feasibility of drilling in this territory is not known by the Forest Service, and the reports say nothing as to possibility of success along this line. Reseeding, except by natural revegetation, is impracticable. To accomplish revegetation, therefore, necessitates control of range and stock, and reports recommending it are to be considered as increasing the number of reports in support of control. Government control is cited wherever the desire for control is mentioned.

The reporters who say the ranges could not be improved apparently base the statement on the fact that in their localities desert range predominates.

Only a few reports give a quantitative estimate for the increase in carrying capacity which should follow Federal control, regulation of grazing, and development, and these are too few in number to be usable. It is estimated, however, that the ranges have deteriorated as a whole 8 per cent. Further, it may be conservatively estimated that range control, development, and the improvement in handling of stock which would follow would result in 10 to 15 per cent more stock being produced on the present amount of forage. Therefore,

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20 to 25 per cent is believed to be a conservative estimate of the possible increase in stock which would ultimately follow control and development of Nevada ranges. On the other hand, continuation of overstocking and unregulated grazing will result in further decrease in carrying capacity.

More stock on farms and homesteads.—The schedules from stockmen show an average estimate of 1⅜ per cent for the expected increase in cattle within the State of Nevada in the next 10 years. The schedules from county correspondents give an average estimate of 39.8 per cent increase in cattle and 34.4 per cent increase in sheep.

The stockmen reporting were undoubtedly looking at the question primarily from the range standpoint, as the reasons given in support of an estimated probable 1⅜ per cent increase are that while high prices will tend toward the production of more stock, both on range and on farms, the increase will be largely offset by decrease in acreage and in carrying capacity of the grazing lands, provided the present lack of management continues. The estimated increase is based on the supposition that no change will be made.

The schedules from county correspondents cite the following reasons in support of an estimated increase of 39.8 per cent in cattle and 34.4 per cent increase in sheep:

(1) General development and improvement of farms and ranches will result in considerable increase in production of hay (alfalfa mentioned most). Lack of market for hay will result in increased live stock production to utilize hay.

(2) High prices for stock will increase effort to produce more forage and more stock. The proportion of breeding stock will increase, and better care generally will be given all stock, with resulting higher production.

(3) Development of artesian water will increase live stock production on many ranges.

The estimate from stockmen is believed to be too low, and the estimate of county correspondents too high. Nevada still has 55,502,439 acres of unallotted and unappropriated lands, of which schedules from stockmen estimate that 4 per cent is suitable for cultivation, while the corresponding estimate from county correspondents is 24.4 per cent. The remaining large acreage is desert in character and will decrease in carrying capacity unless placed under regulation. It is not believed that agricultural development alone in Nevada in the next 10 years will be of sufficient magnitude to increase production for the whole State anything like 39 per cent. With the public lands remaining unregulated and uncontrolled, there will probably be an increase of 25 per cent in cattle and no material change in sheep. The increase in cattle at the expense of sheep will

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be due to the raising of cattle rather than sheep on the farms and ranches. Owing to the large acreage of desert range unsuited to cattle, sheep will probably not decrease.

Better breeding animals and larger increase.—The schedules from stockmen show an average estimate of 70 calves to every 100 cows of breeding age. Individual schedules vary from 35 to 90 per 100 cows. The average is believed to be too high. Although while 90 per cent is exceptional in actual range stock husbandry, there are many such reports among those submitted. By control of the range and provision for full control of the breeding stock the average calf crop should be raised probably 10 per cent, and perhaps a little more, over what it is to-day. On the farms, of course, a 90 per cent calf crop should not be exceptional, but Nevada will be essentially a range State for many years. Further, although Nevada produces good stock, it is believed that with control of the range and a continuance of high prices the general average for a long 2-year-old steer would be 1,000 to 1,050 pounds, instead of 900 to 950 pounds.

NEW MEXICO.

Cattle in New Mexico:	
1910 census	1,082,000
January 1, 1914	980,000
Decrease—per cent	10
Sheep in New Mexico:	
1910 census	3,847,000
January 1, 1914	3,036,000
Decrease—per cent	11
Unreserved and unappropriated public land in State, July, 1914, acres	30,104,843

CHANGE IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—Taking New Mexico as a whole, there has been a general reduction of about 10 per cent since the estimates of 1910. The major portion of these losses appear to have been in the southwestern part of the State and in the north-central part, where, according to the location, there has been a decrease estimated all the way from 6 to 30 per cent. In the southwestern portion some of the reductions are due to the gradual falling off in the carrying capacity of the open ranges used by the cattlemen. In almost the entire eastern half of the State, especially the region along the Texas State line, which is part of the great staked plains of Texas, there is a slight increase in the number of cattle since 1910. In the northern part of this section the increase is due partly to the settlement of very large areas by homesteaders to such an extent that wherever the sheep occupied these ranges they have been almost completely forced out, and the

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settlers in the last three or four years have turned to cattle as a means of utilizing the rough forage, kafir corn, milo maize, etc., grown on their dry farming lands, to such an extent that the number of cattle shows an appreciable increase. This holds good for the counties of Roosevelt, Curry, Guadalupe, Quay, and Union. In the southeastern portion of the State, east of the Pecos River, range conditions for several years have been very good, and many cattlemen have increased their holdings. In the extreme northwestern corner of the State, in San Juan, McKinley, and part of Valencia Counties, there has been a moderate increase in the number of cattle, due partly to the taking up of land by settlers, the building of several irrigation projects, and a series of unusually good seasons. Taking it as a whole, however, the number of cattle in the State seems to have decreased slightly. The figures furnished by the stockmen show an average decrease of 12½ per cent, while those furnished by the county correspondents show an increase of 19½ per cent. Considering the two together and the sources from which the information is obtained, it is believed that a loss of 10 per cent for the entire State is approximately correct.

Sheep.—In the northwestern corner of the State there has been a slight increase in the number of sheep in San Juan and McKinley Counties and also in the south-central part in Otero and portions of Eddy and Chaves Counties. There is also a slight local increase in Sierra County west of the Rio Grande. The rest of the State, however, shows a general decrease in the number of sheep. The figures furnished by schedules from stockmen place this decrease at 4.1 per cent, while the schedules from county correspondents place it at 1.3 per cent. Taking the State as a whole, it is believed that the decrease is probably above these figures and that a reduction of 5 per cent between 1910 and 1914 is approximately correct.

FACTORS RESPONSIBLE FOR THE CHANGES.

Homesteaders.—The settlement of land by homesteaders has somewhat reduced the available grazing area. Schedules from stockmen estimate this reduction at 6.2 per cent, against 41.4 per cent reported by the county correspondents. For the entire State it is believed the figures furnished by the stockmen are the more nearly correct.

While the settlers have located lands in every portion of the State, their encroachments upon the ranges have been more marked in the northeastern section of the State, in those counties lying adjacent to the State of Texas, and it is probably safe to say that in these counties the range has been reduced at least one-third if not more. Elsewhere in the State the homesteaders have not, in the opinion of the investigators, encroached seriously enough upon the ranges to make any impression on the handling of the stock.

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Change from beef to dairy stock.—There is so far no noticeable change from beef to dairy stock in any part of the State. In one or two isolated localities, especially in Dona Ana County in the southern part and in Colfax County in the northern part, where irrigation projects have been developed to a considerable extent, many new settlers have taken up dairying, but this has been an increase in numbers rather than a change in breeds.

Deterioration of the range.—Generally speaking, the conditions of the range throughout the State have not materially changed in the last 10 years. Here and there the reports indicate a slight falling off in its carrying capacity, but if any change at all has come the indications are that there has been an improvement rather than a deterioration. On the National Forests this improvement is very marked, and upon every Forest within the State the reports indicate that the ranges are carrying an increased number of stock. The schedules from stockmen estimate 32 acres to one cow on the basis of 11.2 months' range; the county correspondents estimate 23 acres. All reports claim this is higher than 10 years ago. This 32-acre estimate is considered fairly satisfactory.

Little or no feeding is done throughout the State, the animals with very few exceptions being grazed on the public ranges the year round. What feeding is done is confined to a few areas in the northern part of the State, where during the spring the weakest of the cows are fed a little hay to carry them through the dangerous period.

Better grade of stock.—As in Arizona, there has been a decided improvement in the grade of stock on the public ranges within the last few years. The average value of the bulls used is shown to be $83 per head. This average, however, does not exhibit the real condition upon the ranges, because, as in Arizona and in most range States, the more progressive stockmen, who are generally the owners of the large herds, have spent large sums in purchasing high-grade and even pure-bred bulls. On the other hand, many of the smaller men either turn out scrubs or else have no bulls at all. There are several large herds in New Mexico, notably in the north-central portion, some of which number as high as 10,000 animals, where every bull used is a pure-bred, the result being an extremely large output of stock greatly above the average of range animals. There are also in the southeastern portion as well as the southwestern portion several large herds, one of more than 50,000 head, another of more than 30,000, where very high-grade bulls are used. These, however, do not offset the large number of scrub and low-bred bulls used in small herds.

Weight of steers.—The average weight of 2-year-old steers sold direct from the ranges is 725 pounds, for 3-year-old steers 934 pounds. As in Arizona, the average is somewhat reduced because

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probably 75 per cent of the New Mexico output comes directly from the ranges and is shipped in the early spring months, when the animals are thin and do not therefore weigh out very well.

POSSIBILITY OF INCREASING NUMBER OF STOCK IN THE STATE.

Public ranges.—Practically all the open ranges within the State are occupied to their fullest extent under present conditions, excepting here and there where water development might take care of a greater number of stock. Almost unanimously the schedules indicate that some form of Government control must come before these ranges can be brought up to their full capacity, the belief being that if such control could be secured they would carry approximately 25 per cent more stock than at present. Many individual reporters believe that the passage of the 640-acre grazing homestead bill would tend to bring about the same excellent results, most of them, however, desiring the acreage under that bill to be increased to two or four sections.

Increase from farms and new settlers.—The general opinion expressed in the majority of the schedules is that the new settlers will turn to raising more live stock, probably cattle, and will ultimately increase the State's production very materially; also that the encroachment on the ranges by these settlers has not made any perceptible decrease in the output of cattle, but that it has in sheep. Based upon a careful study of all available data, it is believed that an increase of 20 per cent in the number of cattle and 10 per cent in the number of sheep may be looked for in the next 10 years.

Calf crop.—The estimated number of bulls to the hundred cows is 5, and the average number of calves born for each hundred cows of breeding age is 66. It is noticeable that the reports from the large fenced land grants which are used for cattle raising show an unusually high calf crop, and the owners report the use of more bulls than the average for the State, some of them using as high as eight bulls to the hundred cows. On the open ranges, where the country is very rough, the calf crop is in many instances reported as low as 40 per cent, even with a number of bulls used above the average for the State. It is doubtful if the average number of bulls shown is a true indication of conditions on the range, and it is believed that a conservative estimate for the State as a whole would place the number of bulls at not above three to the hundred cows, and also that the average of 66 per cent increase for the calf crop is far too large when applied to the open range, where probably 50 per cent would be more nearly correct for a period of years.

The sheepmen of New Mexico have not made the progress in breeding up their herds that other sheep-raising States have made.

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although here and there individuals have raised the character of their flocks to a very high standard. Taking the State as a whole, however, the breeding of the New Mexico sheep is not up to the average of the other western range States, although the weight of the clip has somewhat increased in recent years.

COSTS.

Labor costs.—The reports of the labor cost involved in handling range cattle are fairly uniform from all parts of the State, the average being $2.77 per head. This cost ranges from as low as 50 cents per head in large herds to as high as $8 per head in very small bunches. As in Arizona, it is not believed that this average shows the true cost of labor for an average herd, the amount probably being below that estimated for Arizona, or not to exceed $1.50 per head. On sheep the labor cost, including shearing, as reported by the Tariff Board, is 56 cents per head, the lowest of all the western States.

Feed cost.—The cost of feed for range animals is the lowest of all the States reporting, being $1.10 per head per year. This is due to the same conditions as exist in Arizona, namely, the use of the open ranges practically the year round. In the northern part of the State the feed cost for handling cattle within the large pastures which are common there is somewhat higher, owing to the fact that owners estimate this cost upon the value per acre of the land inclosed and the cost of fencing and improvements. This feed cost in such pastures, where in some cases as many as 10 and 12 thousand head of cattle are run, is estimated at from $2 to $3, which is approximately correct. It should be understood that in these large pastures considerable feeding of hay is done in the early spring, which adds to the feed cost, as hay in that region is generally high.

The cost of feed for one sheep for a year as shown by the report of the Tariff Board is 18 cents per head. It is probable that this cost, which was estimated in 1911, is somewhat higher at the present time, owing to the fact that since 1911 the sheepmen of New Mexico have made very heavy investments in State lands upon which to handle their sheep. Probably the average per capita cost to-day for actual feed for one sheep is approximately 22 cents per head.

Cost of raising a calf.—In order to ascertain the true cost of a steer, stockmen were requested to furnish an estimate of the feed cost for raising a calf from birth to 12 months of age. These figures differ very widely. The variation is undoubtedly due to the fact that in most instances the individual reporting took into consideration many of the necessary expenses other than feed incurred in raising a calf. On the large pastures in the northern part of the State,

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where undoubtedly closer account is kept of such items than on the open range, this cost ranges from $4 to $12 per annum. The individual reporting the $12 per annum cost uses 5 bulls to the hundred cows, each bull being valued at $180 per head, and the per acre valuation of the land is placed at $5. The cows too are all very high-grade stock, and in figuring the cost of the calf, the bull and other charges and the interest on the investment were undoubtedly added to the feed cost. On the open range under ordinary conditions in the larger herds this cost is estimated to be from 75 cents to $2.50 per head, with an average throughout the State of $1 per head, which for actual feed cost is probably correct. Taking the entire State, it is believed the feed cost of raising a calf to the age of 12 months should be not less than $1.50 per head.

Interest.—The average rate of interest as shown by the reports is 10.2 per cent. Very few of the reports show a rate of interest less than 10 per cent, except in the southeastern portion in the Pecos Valley, where cattlemen are able to secure loans at the banks for 8 per cent. This is an exceptional case, however, and the average as established by the reports is undoubtedly correct.

Depreciation.—The majority of the reports indicate that no depreciation is charged against a cow until she has passed the age of 6; after that it is estimated that the yearly depreciation amounts to 5.8 per cent. For bulls past the same age the estimate is 15.4 per cent. As in other States, however, many reports indicate that no depreciation is figured on cows, because after raising three or four calves she is sold as beef for an amount in many instances greater than her original cost.

OREGON.

Cattle in Oregon:		
Census 1910		725,000
January 1, 1914		666,000
Decrease	per cent	8.1
Sheep in Oregon:		
Census 1910		2,699,000
January 1, 1914		2,670,000
Decrease	per cent	1.1
Unreserved and unappropriated land in Oregon, July 1, 1914	acres	15,969,846

CHANGES IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—For the State as a whole it is estimated that the number of range cattle has decreased approximately 10 per cent since 1910. The average of the schedules shows less than this, but the large stock-raising district through the central part of the State shows an appreciable reduction, and local reductions of magnitude are reported from

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the eastern part. There has been a marked increase in the counties along the west coast, but it represents dairying rather than range increase, and is on a smaller scale than stock raising in central and eastern Oregon. It is safe to say, then, that the decrease since 1910 is at least 10 per cent.

Sheep.—The county schedules show an average increase of 1.3 per cent in sheep since 1910. The schedules from stockmen show an average decrease of 17.3 per cent. Study of all schedules by counties shows a decrease of 10 to 50 per cent in eastern and north-central parts of the State, no change or a slight increase in the big sheep section of central Oregon, and an increase on the western slope. The decrease in numbers in the eastern part over the actual increase in numbers on the western slope would make the final estimate a still larger decrease than the average deduced from average estimates. It is concluded, therefore, that sheep have decreased 15 per cent in Oregon since 1910.

FACTORS RESPONSIBLE FOR THE CHANGES.

Homesteaders.—The schedules from stockmen show an average estimate of 28.6 per cent of the former range lands homesteaded in the last 10 years. Those from county correspondents estimate 18.7 per cent. Settlement has been rapid in the main range sections of central, southern, and eastern Oregon, so it is safe to estimate that 20 per cent of the former range lands have been homesteaded since 1910.

A study of the schedules by sections shows that only a small percentage of these new settlers are raising live stock over and above the necessary work and milch animals in the main range sections of the State. In the western and southwestern parts they are, but the numbers here do not offset the changes in southern, central, and eastern Oregon. It is believed, therefore, that the average estimate of 9.9 per cent decrease in cattle and 10.9 per cent decrease in sheep, attributed by stockmen to homesteading of range lands, is low rather than high. This decrease, of course, is spread over the last 10 years. For example, it is estimated that homesteading has reduced cattle 33⅓ per cent, and sheep 40 per cent in Grant County; in Baker County, cattle 50 per cent, and sheep 25 per cent; in Crook and Wheeler Counties, sheep 60 per cent; Wasco County, cattle 50 per cent, and sheep 40 per cent. These are important range sections.

Change from beef to dairy cattle.—The department figures of February 7, 1914, show an estimated increase of 23,000 milch cows (13.3 per cent) in Oregon since 1910. Both the county correspondents' and stockmen's schedules confirm this increase. While a general increase over the State is reported, it is believed that the appreciable growth has been in western Oregon rather than in the main range sections of

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eastern and southern Oregon. For this reason it is felt that the growth of the dairy industry has had little influence upon the decrease in production of beef animals. The dairy cows are largely an addition to the total rather than an appreciable subtraction from the beef cattle. As dairying intensifies, the dual-purpose cow gives way to dairy breeds, and to this extent, a minor factor to date, beef cattle have been decreased.

Deterioration of range.—For the State as a whole the county schedules show an average estimate of 11.5 acres as the area necessary to support a cow for an average season of seven and one-half months. These reports, however, include many estimates of 2 to 5 acres which are not representative of any body of range lands. The schedules from stockmen show an average estimate of 22.7 acres. These reports are representative of the main range territory, and the estimate of 22.7 acres per cow for 7½ months is considered approximately correct.

Approximately 60 per cent of the reports state that this acreage is higher than 10 years ago; the others are about equally divided between "no change" and lower. The main consistent increase in carrying capacity is reported from the western one-fourth of the State, where moisture is sufficient to grow cultivated forage plants as soon as the land is cleared. The increase is attributed largely to cultivation and reseeding in this section. Throughout the main range section a considerable number report an increase in carrying capacity, but the majority say the range has deteriorated.

For the main range section of southern, central, and eastern Oregon, a majority of the schedules from stockmen show a decrease in carrying capacity. The rest show either an increase or no change. Those reporting a decrease in carrying capacity attribute it to (1) overgrazing; (2) the growth of timber and brush replacing forage; (3) settlers. Under protection against fire, brush and forest reproduction are undoubtedly encroaching upon the range, and mean an unavoidable reduction in carrying capacity of certain National Forest ranges. The main factor, overgrazing, is gradually being remedied on Forest range, and could be remedied on public domain. Settlement is a factor which can not be overcome, but can be offset in effect by growing stock on the homesteads. Those who report an increase in carrying capacity attribute it to (1) National Forest management; (2) better methods of handling the stock; and (3) placing privately owned range under fence, thus protecting it.

The average estimate given where deterioration is reported is approximately 30 per cent; the average estimate for the increase reported is approximately 25 per cent. Considering these estimates and the "no change" reports, as well as the fact that the majority

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in the main range section report a decrease in carrying capacity, it is estimated that the range for the State as a whole has decreased approximately 5 per cent in carrying capacity in the last 10 years. The other important conclusion is that range under regulation has improved approximately 25 per cent, and range without protection and regulation has deteriorated approximately 30 per cent.

HOW THE NUMBER OF LIVE STOCK IN THE STATE CAN BE INCREASED.

Public range.—The schedules from stockmen show that all the available range is now used and part of it overstocked, except in the case of one locality in northeastern Oregon, reported unused because of lack of water, and minor local areas elsewhere reserved for campers and other necessary special purposes. The county schedules, which more nearly represent conditions in the secondary range counties, show areas unused in Benton, Gilliam, and Sherman Counties on account of a herd law; local areas also are reported unused in Multnomah, Klamath, and Wallowa Counties, owing to lack of stock. The latter cause, however, is a temporary and exceedingly minor factor. It is evident, therefore, that appreciable increase in live stock in Oregon can not be expected from the opening up of new grazing areas.

Of schedules from county correspondents the large majority say the present ranges could be made to carry more stock; a small number say no. Of the schedules from stockmen, the majority say present ranges could be improved; and a few say no.

The schedules from stockmen best represent the main range sections of the State. The few of these which give figures for estimated possible improvement place it at approximately 20 per cent. This is believed to be about right for southern, central, and eastern Oregon, the main-range lands. The methods suggested for securing this increase are (1) reseeding; (2) Government control; (3) improvement in handling stock, including drift fences, salting, better herding of sheep; (4) water development and trail construction; (5) burning logs and brush; and (6) in the case of one report private ownership. Reseeding, improvement in handling stock, trails, and water development for Oregon are all dependent upon adequate control and regulation of range and stock. So far as present knowledge goes, brush burning, which might be a big factor, is impracticable and inadvisable, because it would destroy young growth of timber, which is a resource necessarily under protection. It may be said, therefore, that improvement of the main range lands depends upon continuation of aggressive work on the National Forests in the way of range management, development, and handling stock, and some form of control for the remaining public-domain lands, so that constructive range work will be possible.

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For the western one-fourth of the State improvement centers in the main around clearing and cultivation. Obviously this is the work of private individuals. Continuation of high prices for beef and dairy products is the element needed to bring about this development.

More stock on farms and homesteads.—The schedules from stockmen show an average estimated increase of 16.85 per cent in cattle and 3.1 per cent in sheep during the next 10 years. The county schedules show an estimated average increase of 26.9 per cent in cattle and 11.9 per cent in sheep. The high anticipated increase, as shown by county schedules for the western part of the State, will not increase the total cattle and sheep in actual proportion to the amount shown by counting them in the general average, owing to the small scale of the industry at present. On the other hand, the stockmen's schedules do not fully represent the western part of the State. It is concluded, therefore, that a reasonable estimated increase will be between the two averages, or about 20 per cent increase in cattle and 5 per cent increase in sheep for Oregon in the next 10 years.

Almost without exception this estimate is based upon the belief that high prices, general farm development, increase in forage production, settlement of formerly waste lands, and increased demand for dairy products will result in settlers and small farmers turning to cattle raising. To date the majority of new settlers have not produced stock over and above the necessary work animals and milch animals. With few exceptions it is the belief that they will do so in the next 10 years or sell the holdings to stockmen or farmers who will. Except for the main dairying sections, this expected increase is based largely on the belief that the present comparative prices for beef and grain will continue. It shows, however, a great possibility of developing stock husbandry on Oregon farms and homesteads. Perhaps in no other State do the reports show so large an estimated increase in dairying as in Oregon. This is due largely to the development of logged-off and brush lands on the west slope, where the cost of bringing them under cultivation necessitates intensive agriculture and where precipitation is sufficient to make the cultivated lands very productive. Dairying may reduce the increase in beef production from the estimate of 20 per cent to approximately 15 per cent.

The larger increase in cattle than in sheep is due probably to increase in dairying and to the fact that at the present time and in the near future small farmers and settlers can handle a few cattle more readily than a few sheep. Sheep on farms in Oregon offer no small possibilities, but this factor takes longer than 10 years to develop properly.

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Better breeding animals and larger increase.—The development of the stock industry on farms and homesteads, the increased cost of production on ranges as well as farms, the increased care of individual animals due to their individual high value, and the increasing tendency to market by weight rather than by the head will all work toward the improvement of the individual animal and consequently the average. This will apply to increase in calf crop as well as to weight. The average estimate for calf crop in Oregon is 75 calves to each 100 cows. With better care this average should increase perhaps 10 per cent. Oregon produces good cattle today, but there is actual possibility of increasing the average weight, as is shown by the fact that for different localities the weight of a long 2-year-old steer is given from 700 pounds to 1,050 pounds, and sufficient sales by weight have been made to justify accepting the stated weights as reliable.

UTAH.

Cattle in Utah:	
1910 census	412,000
January 1, 1914	444,000
Increase—per cent	7
Sheep in Utah:	
1910 census	1,827,000
January 1, 1914	1,970,000
Increase—per cent	8
Unreserved and unappropriated land in Utah July 1, 1914—acres	33,756,502

CHANGE IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—For the State as a whole it is estimated that the number of cattle on the range has decreased 7½ per cent since 1910. A study of individual reports shows an estimated decrease of approximately 10 per cent in the southern end of the State and in part of Wasatch and Uinta Counties. A slight increase is reported for the central part of the State and in Cache and Rich Counties in the northern part of the State. The latter sections have not gone into fruit extensively and are not situated advantageously for profitable marketing of the large amount of hay grown.

Sheep.—It is estimated that the number of sheep on the range has decreased 14 per cent since 1910. The number of sheep run yearlong on farms in increasing. This fact will probably account for part of the discrepancy between the estimated decrease here given and the estimated increase given in the Agricultural Outlook, February 7, 1914. It is doubtful, however, if there has been any increase in the total number since 1910.

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FACTORS RESPONSIBLE FOR THE CHANGES.

Homesteaders.—It is estimated that approximately 10 per cent of the range lands have been homesteaded during the last 10 years. The majority of the homesteaders on the lands taken are not raising live stock over and above the necessary work and milch animals. In the central part of the State and in exceptional cases elsewhere they are, but as a rule they are devoting attention mainly to raising wheat. It is estimated that as a result of this settlement the number of cattle has decreased 3 per cent and the number of sheep 8 per cent. This is due to the fact that much territory formerly used as spring and fall range has been transformed into wheat fields. The problem of securing lambing grounds for sheep is growing more acute each year, owing to settlement of the foothill territory.

Change from beef to dairy stock.—In the central part of the State, especially in San Pete Valley, the number of dairy cattle has materially increased. In the northern part of the State there has been a slight change from beef type to dairy type. In all the southern (arid) part of the State there has been no appreciable change. This change tends to increase the total number of cattle, but decreases the output of beef. Approximately 65 per cent of the reports state that the change thus far has not decreased the output of beef; 35 per cent report that it has. As a whole there has probably been a slight decrease in the beef output, due to increase in dairying.

Deterioration of range.—It is estimated that for the State as a whole an average of 22 acres of the public range will support a cow for the average season of nine months. For the southern part of the State an average of 35 acres is necessary to support a cow through the year; in the central and northern parts an average of about 17 acres is necessary for an average season of eight months.

The schedules as a whole show that in the National Forests there has been an increase in carrying capacity, the stockmen's estimates varying from 10 per cent to 50 per cent, and that on the public domain there has been a decrease in carrying capacity. Forty-eight schedules from county correspondents show an average estimate of 38.6 per cent decrease in carrying capacity. It is doubtful if the average decrease is so high, for the reason that National Forest range has improved, and the large acreage of desert range, which can be used only in winter, has undergone little change. The public-domain range has probably depreciated 20 per cent and the range on National Forests improved at least 15 per cent in the last 10 years, leaving in the aggregate an average of about 5 per cent decrease for the State.

The main factors cited as responsible for reduction in carrying capacity on the public domain are overgrazing and settlers, over-

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grazing being cited in approximately 80 per cent of the cases. The increase in carrying capacity is attributed to Government regulation and allotment of range on National Forests, less stock in a few localities, and more rain in recent years. These data all point to proper stocking and regulation of stock as the prime factor in range recuperation and maintenance.

Better grade of stock.—The general tendency toward improvement of the individual animal somewhat at the expense of numbers undoubtedly has had some influence in decreasing the number of stock in the last 10 years. To-day a great many mutton lambs and some beef are sold direct from the range, and feeders are usually in excellent condition. This was true to a much less extent, if at all, 10 years ago. Where the range is all in demand, as in Utah, a decrease in the number of stock per unit of forage is necessary to accomplish this improvement.

HOW THE NUMBER OF LIVE STOCK IN THE STATE CAN BE INCREASED.

Public range.—With the exception of a few localities all of the open range of the State is reported in use. In the southern (arid) part as much as 25 per cent is reported unused, owing to lack of water. The average even for this arid section, however, is much less than this. In the central and northern parts of the State small local areas are reported unused because of lack of water. The whole territory is considered fully stocked or overstocked for its present condition of development and plan of management.

Of the schedules received, however, from stockmen and county correspondents all but a negligible few state that the public range could be made to carry more stock. The means advocated for accomplishing this are: (1) Proper control of the range, usually recommended as Government control; (2) reseeding or revegetation by protection of range; (3) water development. In many instances proper control and water development are given as necessary; in others water development and reseeding; in others reseeding and proper control of range. It may be said that both reseeding and water development depend for success upon proper control, as water development without control means, in the gross, further overstocking, and revegetation with native species, the only practicable method, can not be accomplished without control of all stock.

Only a few of the schedules gave quantitative estimates of the increase in carrying capacity which would follow control and improvement. These varied from 20 per cent to 100 per cent, with an average of 40 per cent. Considering the large acreage which has undergone improvement in National Forests and the desert character of a large area of Utah range, 40 per cent is probably too high as an

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average to be expected from the State. It is believed that 25 per cent would be nearer the possible average increase and it will probably require 10 years to bring it about.

More stock on farms and homesteads.—The schedules from stockmen show an average estimate of 22 per cent for the expected increase in cattle within the next 10 years. Those from county correspondents show an average estimated increase of 26.8 per cent in cattle and 6.1 per cent in sheep within the next 10 years. The reasons given in support of these estimates, in order of importance and number of reports, are high prices and agricultural settlement and development.

High prices make stock raising more profitable than grain raising, and old farmers as well as homesteaders will grow more forage and live stock and less grain. New settlers will turn to stock raising as soon as they are supplied with forage and money. The general improvement and development of farms will result in more produce and increased difficulty of marketing at a profit, consequently the present tendency toward feeding beef and mutton will increase. Also this general development will result in increased demand and necessity for more dairying.

In this connection it is estimated that 6 to 8 per cent of the remaining public land is suitable for homesteading. The settling of this land will temporarily further reduce the number of stock, but as the settlers become established and are financially able, they will turn to live stock, provided the present comparative prices for meat and grain continue.

Better breeding animals and larger increase.—The average estimate of calves per 100 cows for the State is 69, but it is doubtful if the average is so high under present conditions. By control of the public-domain lands and provision for legitimate fencing to separate breeding stock from other stock during the breeding season, it should be possible to increase the calf crop 5 to 15 per cent. Also this control would encourage the purchase of better bulls by assuring the purchaser that he and not his neighbor would benefit by such purchase. There is no doubt that the average individual animal on the ranges could be increased 100 pounds in weight.

WASHINGTON.

Cattle in Washington:	
1910 census	402,000
January 1, 1914	433,000
Increase per cent	8
Sheep in Washington:	
1910 census	476,000
January 1, 1914	506,000
Increase per cent	6
Unreserved and unappropriated public land in State July 1, 1914, acres	1,799,774

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CHANGE IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—The State of Washington is one of the few States investigated that show an actual increase in the number of both classes of live stock within its borders. A close analysis of the figures relating to cattle indicate that since 1910, in the purely range cattle industry, while there has been a decrease of about 16 per cent since 1910, there has been an increase of about 25 per cent in the dairy stock in this period. The small remaining area of public lands is also an indication of the agricultural development of the State, there remaining unappropriated and unreserved but 1,800,000 out of the original 44,000,000 acres in the State. This increase in numbers appears to have taken place upon the western or coast section of the State, where the dairy industry has been greatly developed within the last few years. On the other hand, the decrease is marked in the eastern part of the State, where the vast foothill ranges formerly occupied by the range cattle have been turned into wheat farms upon which little or no stock is being raised. In the extreme southeastern corner of the State, in the vicinity of one or two of the National Forests, there has been some slight increase in the number of cattle, due to the protection of the range in the Forests, with the possibility of the settlers securing permanent grazing grounds therein. Taking the State as a whole, there has probably been an increase in cattle of about 6 per cent since 1910.

Sheep.—The increase in the number of sheep, so far as the investigators are able to discover, is not confined to any one particular area or section, nor is it due to any one factor. In some of the regions, where a decade ago large bands of sheep were grazed on the open ranges, it is evident that the business has fallen off very materially. On the other hand, there are many scattered areas throughout the State in which it appears that settlers are finding small bands of sheep profitable and the industry has really increased within the last four years, although probably it has not by any means regained the value or numbers that it once attained in the State. The sheepmen of the State have given their attention within recent years more to the production of mutton than of wool, with the result that according to the Tariff Board 82 per cent of the rams used in the State were of the mutton type as against (for comparative purposes) New Mexico, which has but 6 per cent. Owing to this development of the mutton industry, it is probable that within recent years the average weight of the lambs produced on the sheep ranges of Washington has increased at least 10 per cent. There has also been a very general increase in the last decade in the average weight of the fleece of the Washington sheep, which, as shown by the report of the Tariff Board, is greater than in any other of the western States, being 9.3 pounds per fleece.

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The view taken by individuals reporting on this matter is that there will be a general increase of from 10 to 20 per cent in the number of sheep within the State during the next few years. The reasons given for such increase are that many of the smaller farmers find in sheep a means of utilizing considerable of the waste upon their farms, especially within the logged-off regions, where the growth of forage and browse plants upon these lands furnishes splendid feed that would otherwise be unused. The general increase in sheep since 1910 may be approximately estimated at 3 per cent.

FACTORS RESPONSIBLE FOR THE CHANGES.

The increase in the farm unit in the State of Washington and fuller utilization of the unit through diversified agriculture and a general move to utilize the logged-off lands within the State is undoubtedly responsible for this increase in numbers of both classes of stock. The new settlers are finding a better market for the products of their farms through live stock and especially dairying, while in some parts of the State the reports indicate that a great many men who went into fruit growing on a rather extensive scale are now turning their attention to more diversified agriculture, reducing their orchard acreage considerably and turning to live stock as a means of more fully utilizing the areas under cultivation. The increased value of all meat animals within the last few years has naturally hastened this development, and from the reports there is a strong probability that this increase will continue for several years.

Better grade of stock.—The schedules all point to a very high individual value for the bulls throughout the State, the average being $124, or second highest of all the States reporting. The average calf crop is also very high, being 79.5 per cent, or approximately 79 calves for every 100 cows. This can be partly accounted for by the fact that most of the holdings within the State are small, and, especially in the dairy herds, the calf crop is much higher than where the stock are grazed in scattered numbers on the open ranges.

Weight of steers.—The average weight of steers for the State is placed at 1,032 pounds for 2-year-olds and 1,235 pounds for threes. The majority of the steers produced on ranges and farms of the State are turned off in the fall ready for market, and the grade of the bulls is reflected in this excellent weight of the steers sold.

Weight of sheep.—Probably some of the heaviest lambs produced on the ranges in the West come from the Washington flocks. These are range sheep and, as stated, the Washington sheepmen, having turned their attention very strongly toward the mutton type, are raising a lamb that is extremely heavy.

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COSTS.

Labor cost.—Throughout the State the estimate of the yearly labor cost per head for cattle averages $3.71. There is a wide variation in these reports, strictly range men estimating the cost at as low as $1 per head and others whose feeding periods are rather long estimating them at from $6 to $10 per head. Manifestly the latter figures can not be correct. One of the best-posted stockmen in the State estimates the labor cost at from $2 to $3. In all probability, if a careful analysis could be made of the points considered in making these replies by the various parties to whom the queries were addressed, the average of about $2.50 for labor would not be far from correct. The cattle are grazed on an average of 7.9 months, either on pasture or on open ranges. The rest of the time they are fed some hay, although, owing to the mild climate in the most of the State, the amount of hay required should not be as large as in States like Montana and Wyoming. Notwithstanding these facts, however, the cost of this winter feeding is higher than in any other of the States reporting, being $9.92 per head for the period mentioned. No figures are submitted showing the cost of this feed by the ton, so that it is impossible to state with any exactness whether or not this unusually high feeding cost is due to the high price of the feed itself or to other causes not known to the investigators.

Cost of raising a calf.—The cost of feed for a calf to 12 months of age averages $8.61 for the entire State, which compares very favorably with the cost in most of the other range States, and by careful analysis of the various figures presented and knowledge of the ability of some of the men furnishing them to make this estimate this rate is not believed to be excessive.

Interest.—The average rate of interest throughout the State which stockmen have to pay for carrying on their business is 8.7 per cent, which is somewhat below the average for the States under investigation. Unquestionably this rate is secured by reason of the fact that the live stock business of the State is on a rather sound footing, the owners having well-improved farms as a basis for obtaining such loans.

Depreciation.—The yearly depreciation upon a range cow is estimated at 5.24 per cent, most reporters believing that depreciation should not be considered, owing to the fact that under present conditions, after she has raised a number of calves, the cow is sold for beef for approximately her full value. For bulls the depreciation is established at 14.7 per cent, which is not considered an excessive depreciation rate, considering the high average value of the bulls within the State.

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POSSIBILITIES OF FURTHER EXTENSION OF STOCK BUSINESS.

Carrying capacity of ranges.—The reasons given for anticipating a further extension of the stock business throughout the State are varied. The average acreage required to support one cow is estimated by Forest Service reports at 14.4 and by the county schedules at 13.9, with no change in the last 10 years. This undoubtedly is too low, and an average of 20 acres for one cow for eight months is probably more nearly correct. A number of the individuals reporting believe that eventually there will be some form of Government control which will regulate the grazing and thus increase the carrying capacity of the ranges. This, however, does not seem likely, owing to the fact that such a small amount of public land remains to be thus controlled. Many believe that the lands used for grazing purposes can be reseeded and thus increase their capacity. The development of water is also urged, and several reporters believe that if systematic efforts were made to clear off by fire the brush that now exists on many of the ranges a large increase in the number of stock would follow. It has been proven, however, that reseeding operations on the open ranges by artificial means are not productive of results, but that under proper control whereby a rotation in the use of the land by grazing is secured the land will naturally reseed and the forage cover may be restored almost to its primitive condition. Taking this view of the matter, it appears that a majority of the individuals reporting see in some form of Government control the greatest possible means for increasing the number of stock within the State. The schedules from stockmen estimate that in the next 10 years there will be an increase of 25 per cent in the number of cattle, while the county schedules place it at 65 per cent, which is manifestly too high.

In sheep this expected increase is placed at 11 per cent by the stockmen and 21 per cent by the county reporters. Taking all factors into consideration, and studying the increases for the years since 1910, it is believed that a conservative estimate of such increases for the coming 10 years would be 20 per cent for cattle and 15 per cent for sheep.

WYOMING.

Cattle in Wyoming:	
1910 census	767,000
January 1, 1914	587,000
Decrease per cent	27
Sheep in Wyoming:	
1910 census	5,397,000
January 1, 1914	4,472,000
Decrease per cent	17
Unreserved and unappropriated public land in State July 1, 1914, acres	31,553,423

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CHANGES IN LIVE STOCK ON THE RANGE SINCE 1910.

Cattle.—The decrease in the number of cattle as shown by a comparison of the census of 1910 and the estimate for 1914 is not entirely borne out by the data submitted with the schedules in connection with this investigation. The reports secured by the Forest Service show this reduction to average 5.3 per cent for the entire State, while the figures taken from the schedules of county correspondents place it at 59.9 per cent. The Forest Service report is undoubtedly somewhat lower than it should be, probably because of the fact that the conditions on the Forests are so much better than on the public domain that the proportionate losses have been much less. On the other hand, a loss of 59.9 per cent in four years as shown by the county correspondents' schedules is undoubtedly wrong. Analyzing the various reports received and discarding those which are entirely local in character, it is believed that the general average reduction in cattle throughout the State since the census of 1910 should be placed at about 20 per cent.

There are three areas within the State upon which an increase in cattle is noticeable. In the northern part, in the vicinity of the Bighorn National Forest, there has been a local increase over quite an extensive area of cattle range estimated at 15 per cent. In the extreme eastern part of the State, in Niobrara County, there has been a local increase of about 10 per cent in the number of cattle. In both of these areas the increase is due to improved range conditions and local development. In the southwestern and western parts of the State, on an area covering the southern part of the Bonneville and all of the Bridger and Washakie National Forests and extending thence in a southeasterly direction until it reaches the Hayden and Medicine Bow National Forests in the vicinity of Laramie, there is an area in which the increase is reported at from 15 to 20 per cent, owing mainly to the rapid development of the Green River country in the western part of the State and several large irrigated areas in the open plains region southeast of Lander. The reports indicate that a large amount of range land has in the last few years passed into the hands of the settlers for farming purposes, and contrary to the reports from many of the other States, there is an actual increase in the number of cattle, due to these new farms. Many of these farms, however, are irrigated areas on which only hay is raised, and the settlers naturally have turned to cattle as a means of utilizing the crops produced on their lands. Over the rest of the State, especially in the extreme eastern section, the reduction in actual number has been rather heavy, estimated in the majority of cases at from 20 to 50 per cent. This area is entirely open grazing country, and these heavy reductions are undoubtedly due to a series of seasons

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when the rainfall was much below the normal, and thousands of cattle and sheep were forced upon the market to save their owners from heavy loss.

Sheep.—The decreases in sheep, with the exception of a small area in the extreme southeastern corner of the State, in Laramie County, have been very marked. In Laramie County an increase of about 15 per cent is reported, due undoubtedly to local agricultural development. In the rest of the State, however, the loss is high, excepting possibly in the extreme western portion, where, owing to the protection of the National Forests, the numbers seem to have been reduced much less than elsewhere. The decreases shown by the Government figures of 1910 and 1914 (17 per cent), those furnished by the stockmen's schedules (28 per cent), and those furnished by the county schedules (21.9 per cent), are so reasonably close together that it is fair to assume for comparative purposes that the reduction over the entire State is about 22 per cent. The causes leading up to these reductions in sheep are several; the main cause, however, was a series of very dry years, especially the year 1910–11, when large numbers of sheep in the eastern part of the State either died from starvation or were forced on the markets to save them from that fate. Another cause was the feeling on the part of many sheepmen that business conditions and changes would bring about a decided slump in sheep values. This feeling led them to put their herds on the market in anticipation of such losses, which happily did not follow. A third cause was the fact that for several years the Wyoming sheepmen sold almost their entire annual crop of lambs, without retaining the female lambs to fill up the gaps in their herds or replace ewes that had passed the safe limit of age. The result of this has been that during the last two years the Wyoming sheepmen, in common with sheepmen in several other western States, have found themselves with practically 75 per cent of their flock composed of aged ewes which should have been sold before. These were also forced upon the market and thus added to the general loss in numbers. Under present conditions of handling sheep in the State and the outlook for high prices of wool and mutton, it is believed that the downward trend in numbers in Wyoming has ceased and that a very considerable increase will be shown by the next annual census.

The sheepmen of Wyoming have spent large sums in building up their flocks, especially in producing the mutton breeds of sheep in preference to the Merino type, which is produced more for wool than for mutton. In the western and southern portions of the State, where the sheep are summered on the high mountain ranges, the mutton breeds are almost universally raised, while on the open prairie country the Merino-Rambouillet type is the favorite.

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FACTORS RESPONSIBLE FOR THE CHANGES.

Homesteaders.—The coming of the homesteader in Wyoming has not caused any particular reduction in the number of live stock raised in the State; on the contrary it probably has somewhat increased the number of cattle, and this situation will not be greatly changed in the future. There will probably be a still greater growth of the cattle industry in the northwestern portion of the State, where, in the Green River Valley, there are still large areas suitable for homesteading upon which hay can be economically produced. This will add to the number of cattle now there.

Better grade of stock.—The average value of the bulls used is shown to be $160, which is none too high considering the unusually high class of bulls used on the majority of the ranges within the State. Wyoming has a fairly satisfactory law regarding the use of any but pure-bred bulls on the range, the results of which are shown by the high grade of beef steers produced. The number of calves born for each hundred head of cows of breeding age ranges from 60 to 95, the latter percentage being reported from the ranges in the Jackson Hole region. Conditions under which cattle are grazed in the Jackson Hole country are unusually satisfactory and favor the production of a very large calf crop. Taking the State as a whole, however, it is safe to estimate the annual calf crop at the average shown by the schedules—73.3 per cent.

Weight of steers.—The average weight of steers from the ranges in the western part of the State is placed at 1,075 pounds for 2-year-olds and 1,300 pounds for 3-year-olds, while in the eastern part of the State, on the open ranges, where conditions for putting on weight are not so good, the average is 737 for twos and 1,155 for threes.

POSSIBILITY OF INCREASING NUMBER OF STOCK IN THE STATE.

Public ranges.—With the exception of the ranges in the northwestern portion of the State, in the Green River Valley, upon which some increase can be loked for, the ranges are occupied to practically their full capacity under present conditions of range management. A large number of the reports coming from cattlemen attribute the decrease in the carrying capacity of the range and the consequent falling off in numbers to overgrazing and the presence of too many sheep on the range. A good many stockmen make the statement that some form of control of the open range must come before any increase in its carrying capacity can be looked for, and they see no possibility of improvement, except under strict Governmental control, along the lines followed on the grazing lands within the National Forests. There is no particular lack of water on the Wyoming ranges, and as far as watering facilities are concerned the

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ranges are nearly all of them capable of being fully used with the present watering facilities. The average number of acres required for one cow for the 8-month period is given by stockmen's estimates at 25.8, while the county estimates place it at 20.6. For the land still available this average should doubtless be close to 30 acres for a cow.

Increase from farms and new settlers.—There will undoubtedly be a marked increase in the number of cattle and perhaps a slight increase in the number of sheep due to new farms and settlers on lands not at present under cultivation.

A careful estimate of the possible increases in the number of live stock in Wyoming during the coming 10 years would be 20 per cent for cattle and not more than 2 per cent for sheep.

COSTS.

Labor cost.—Taking the State as a whole, the estimates of the labor cost involved in handling cattle on the ranges are somewhat higher than in the Southwest, the average for the State being $2.33. This is probably very nearly the true figure. The cattle are grazed for about 7½ months and fed about 4½ months. It is during the months when the animals are fed that the labor cost mounts up. On sheep the labor cost, including shearing, as reported by the Tariff Board, is 72 cents per head, which is somewhat higher than for other States in that vicinity.

Feed cost.—The cost for feed for range cattle during the seven months they are upon the range averages for the entire State $3.72, while the cost of feed during the period they are fed hay is $6.64, making the total annual charge for feed amount to $10.36 per head, based upon market value of hay consumed, and not upon the actual cost of raising it. In most of the hay-feeding regions the average price per ton for hay is from $5 to $8 in the stack. Many estimates as to the cost of placing the hay in the stack were secured. They range from $1 to $2.25 per ton, which includes, of course, only the labor and upkeep of machinery used in haying. On a basis of actual cost of the hay to the stockman the feeding cost would be considerably reduced.

The cost of feed for one sheep per year, as shown by the Tariff Board, is 36 cents, which is lower than for any other of the northwestern States. This low rate, however, is due to the fact that comparatively few of the Wyoming sheepmen feed their flocks during the winter season, as that State has within its borders a very large area of superior winter sheep range upon which, excepting during extreme winters, the losses are seldom severe and the hay feeding not often necessary. There is now a tendency, however, on the part of the

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more progressive sheepmen to provide more hay than formerly, and the average cost for sheep feed is probably at the present time somewhat higher than that shown by the Tariff Board report, which was made in 1911. Probably a feed charge of 45 cents per head for Wyoming sheep would not be far from correct under present conditions in the State.

Cost of raising a calf.—The average cost of feed for raising a calf to 12 months of age is found to be $8.65. In the western part of the State, in the Green River country, this estimate is placed at $9.33, while in the Jackson Hole region it is placed at $6. Taking the State as a whole, it is believed that the average of $8.65 is approximately correct.

Interest.—The average rate of interest as shown by the reports is 9½ per cent. This is undoubtedly due to the fact that the majority of the Wyoming cattlemen are prepared to feed their cattle during the hard winters, thus preventing the losses that heretofore occurred where feed was not so provided. They are, therefore, able to secure loans from their bankers at much more favorable rates and on much better terms than cattlemen in the Southwest.

Depreciation.—The average yearly depreciation of cows after 6 years of age is estimated at 3.6 per cent, on bulls after 4 years of age 18 per cent. Wyoming cattlemen are as a rule inclined to dispose of a bull after three years' use, and this depreciation is not believed to be excessive, although under present conditions many of their bulls bring unusually high prices for slaughtering purposes. Their high average cost originally, however, leaves a very considerable gap between this cost and their value as beef animals.

Cost of a 2-year-old steer.—In the northwestern portion of the State, where there is a fairly constant cost and conditions do not change much from year to year, a number of experienced cattlemen reported that, taking one year with another, the cost of producing a 2-year-old steer and getting him to the railroad for shipment was between $22 and $25. Based upon the figures given in the various schedules, the cost of raising a 2-year-old steer appears to be somewhat more than this, or approximately $46.18. These figures, however, are believed to be somewhat higher than they should be, owing to the fact that the hay fed is taken at its market value and not its cost. Again the growth of a heifer calf into a $50 cow is not taken into consideration, as well as several other factors relating to cost which will change the amount considerably. Careful analysis of all the figures submitted and data secured in other ways indicates that $35 is probably a fair general average for such a cost, which includes labor, feed, losses, depreciation, bull service, and all the other items entering into the production of a beef animal except interest.

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A FARMSTEAD IN NORTHWESTERN IOWA TYPICAL OF THOSE WHERE BABY BEEF IS PRODUCED. RECORDS WERE TAKEN ON THIS FARM IN 1914 AND 1915.

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Issued July 1, 1916.

United States Department of Agriculture,
OFFICE OF THE SECRETARY.

Report No. 111.

[Contribution from the Office of Farm Management, W. J. Spillman, Chief, and the Bureau of Animal Industry, A. D. Melvin, Chief.]

MEAT SITUATION IN THE UNITED STATES.

PART III.

METHODS AND COST OF GROWING BEEF CATTLE IN THE CORN BELT STATES.

BY

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AND

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EXPLANATORY STATEMENT.

In the winter of 1913–14 a committee of well-known investigators, familiar with agricultural conditions, was appointed by the Secretary of Agriculture to consider the economics of the meat situation. This committee was composed of Dr. B. T. Galloway, Assistant Secretary of Agriculture, as chairman; Dr. H. J. Waters, president of the Kansas State Agricultural College; Prof. C. F. Curtiss, Dean of the Iowa State College of Agriculture and Mechanic Arts and director of the Iowa Agricultural Experiment Station; H. W. Mumford, Professor of Animal Husbandry, University of Illinois; Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture; and Dr. T. N. Carver, director of the Rural Organization Service, U. S. Department of Agriculture. Mr. Leon M. Estabrook, Chief of the Bureau of Crop Estimates, was made secretary of the committee.

No formal report was prepared by this committee, but, at the suggestion of the committee, independent inquiries dealing with several phases of the meat situation were undertaken by specialists of the U. S. Department of Agriculture. The results of these inquiries have been crystallized by the department in a series of five reports, under the general title of the "Meat Situation in the United States," each report complete within itself and bearing a separate number in the series of reports of the Office of the Secretary, as follows:

Part I. Statistics of Live Stock, Meat Production and Consumption, Prices, and International Trade for Many Countries. By George K. Holmes, Bureau of Crop Estimates. (Report No. 109.)

Part II. Live Stock Production in the Eleven Far Western Range States. By Will C. Barnes and James T. Jardine, Branch of Grazing, Forest Service. (Report No. 110.)

Part III. Methods and Cost of Growing Beef Cattle in the Corn Belt States. By J. S. Cotton and Morton O. Cooper, Office of Farm Management, and W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 111.)

Part IV. Utilization and Efficiency of Available American Feed Stuffs. By W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 112.)

Part V. Methods and Cost of Marketing Live Stock and Meats. By Louis D. Hall, F. M. Simpson, and S. W. Doty, Office of Markets and Rural Organization. (Report No. 113.)

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METHODS AND COST OF GROWING BEEF CATTLE IN THE CORN BELT STATES.

OBJECT OF INVESTIGATION.

The object of this investigation was to determine as accurately as possible the cost of producing beef animals on corn belt farms.[1] To this end information was gathered covering the following specific points:

(1) The cost of maintaining breeding animals.
(2) The cost of growing calves to weaning time.
(3) The cost of growing these calves to marketable age.
(4) The cost of producing baby beef.

In addition, effort was made to gather such other data as might throw light on the status of the present beef-cattle situation in the corn belt States.

In order to get significant figures, 596 records were obtained from farms in the States of Indiana, Illinois, Minnesota, Iowa, Missouri, South Dakota, Nebraska, and Kansas.[2] The general area covered by the survey is shown in figure 1.[3] An effort was made to get at least 20 records in a locality. The farms visited in the various States ranged in size from an average of 294 acres in Indiana and Illinois to 566 in Kansas. The value per acre was lowest in Indiana, being $59, and highest in Iowa, where the land was worth $175. Records were pro-

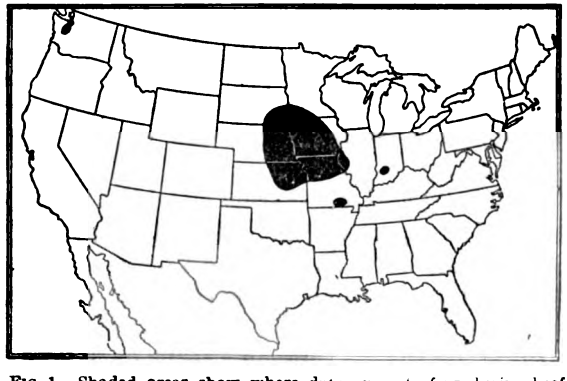

FIG. 1.—Shaded areas show where data on cost of producing beef animals were obtained.

[1] Acknowledgment is due Messrs. K. C. Ikeler, P. C. Tomlinson, and Clarence Cecil, who assisted in collecting the data presented in this report; and to Mr. H. R. Tolley, computer, Office of Farm Management, for valuable assistance in compiling the tabulations. The authors wish to acknowledge the courtesies extended by various members of the State experiment stations of the States in which the work was conducted. Thanks are also due to the many farmers who assisted in making this report possible.

[2] One of these records was from a farm in Missouri that did not maintain a breeding herd but purchased a bunch of calves and fattened them for baby beef. In dealing with the breeding herds 595 records are used.

[3] It will be noted that no investigations have as yet been made in a large area lying between the region where this survey was made and the region where costs were obtained on the production of beef animals under range conditions (see Report No. 110 of this series). In that area the costs are somewhat intermediate, but probably more nearly like those found under range conditions.

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cured on 14,634 cows and 621 bulls, and on 12,591 calves produced from them, of which 2,023 were fattened for baby beef.

CLASSIFICATION OF RECORDS.

The records have been arranged in six groups, the classification being based on the six distinct practices followed, in general, by the farmers from whom records were obtained. As there were no existing terms that properly defined some of these groups they were, for convenience in discussion, arbitrarily classified as follows:

Beef.—Farms where all the cows are kept strictly for beef (not including farms producing baby beef). On a number of these farms enough milk was taken from two or three of the best milkers to supply the family with milk and butter. In such instances the milk and butter credits have been ignored, it being found that the value of the extra labor in milking and caring for the calf, and of the extra grain given, usually offsets the value of these milk products.

Baby beef.—Farms on which the breeding herds are maintained for the production of high-grade calves which are fattened on the same farm and sold at from 12 to 18 months of age as baby beef.

Dual purpose.—Farms on which all of the cows are milked, and either cream or butter sold, the calves being weaned at birth and raised on skim milk.

Mixed.—Farms on which the practice is to milk the best cows, their calves being weaned at birth and fed skim milk. The calves from the other cows are allowed to run with their dams as in the beef group. This is a combination of the beef and the dual-purpose business.

Partially milked.—Farms on which the calves are not weaned, but on which a part of the milk is drawn from the cow, the calf taking the remainder. There are a number of variations of this practice. One of these is to allow the calves to run with their dams during the day, but to keep them in a separate inclosure at night, the cows being milked in the morning. Another common practice is to keep the calves separate and allow them to take the bulk of the milk twice daily, the remainder being taken for household and market purposes.

Double nursing.—Farms where some of the cows are milked and their calves given to other cows, the latter raising two calves each.

SUMMARY OF RESULTS.

The gross cost of maintaining breeding cows (see Table 1) is lowest, $35.12, in the beef group, where roughage is the principal winter feed, and highest, $55.14, in the dual-purpose group, where the cows were fed grain throughout the winter. The cost for the other groups is intermediate.

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The net cost of maintaining breeding cows is highest, $30.33, in the beef group and lowest, $6.07, in the dual-purpose group. The difference between the net cost and the gross cost for the different groups is largely due to milk products from cows that were milked.

The net maintenance cost for breeding bulls is highest, $53.26, in the baby-beef group and lowest, $34.14, in the partially-milked group. Where baby-beef calves are produced, breeding bulls of high quality are necessary and a high cost of maintenance results.

The percentage of cows raising calves to weaning time is greatest, 92.1, in the double-nursing group and smallest, 83.9, in the dual-purpose group. This percentage, which is largely dependent upon

TABLE 1.—*Summary table showing for the six groups the various factors that make up the cost of producing a yearling.*[1]

Item.	Beef.	Baby beef.[1]	Dual purpose.	Mixed.	Partially milked.	Double nursing.
Number of farms	230	66	110	102	65	22
Average number of cows per farm	31.50	34.56	12.75	23.47	14.29	17.32
Cost of maintaining the breeding herd:						
Gross cost of maintaining a cow	$35.12	$36.77	$55.14	$43.95	$42.75	$46.50
Credits other than calf	4.79	5.39	49.07	24.72	21.43	33.26
Net cost of maintaining a cow	30.33	31.38	6.07	19.23	21.32	13.24
Net cost of maintaining a bull	42.27	53.26	37.51	46.79	34.14	40.53
Calf crop:						
Percentage of cows raising calves to weaning time	84.9	90.7	83.9	87.5	90.1	92.1
Number of calves per bull	20.9	25.3	10.7	18.5	12.6	15.0
Cost of raising a calf to weaning time:						
Cow charge	35.47	34.50	7.34	22.29	23.71	14.53
Bull charge	2.26	2.29	4.02	2.91	3.35	3.02
Feed	.01	.00	9.35	4.48	.02	.26
Labor	.00	.00	2.56	1.11	.00	.01
Total cost at weaning time	37.74	36.79	23.27	30.79	27.08	17.82
Cost of raising a yearling:						
Number of farms	190	67	99	96	57	22
Average number of calves per farm	24.43	30.20	10.57	18.46	11.16	14.23
Cost at weaning time	[2] 38.20	[2] [3] *57.01*	[2] 23.64	[2] 30.61	[2] 26.39	17.82
Winter-feed cost	12.32	*55.02*	9.93	12.01	12.21	10.24
Other charges	4.62	*6.02*	4.92	4.72	4.66	3.86
Gross cost	55.14	*78.05*	38.49	47.34	43.26	31.92
Credits	1.60	*7.53*	1.89	1.48	1.54	1.67
Net cost	53.54	*70.52*	36.60	45.86	41.72	30.25

[1] The statement for the baby-beef group gives figures on the calves until they are marketed at approximately 15 months of age.

[2] The change in the number of farms on which the tabulation of cost of producing yearlings is based causes the figure on cost of calf at weaning time to change in this part of the table. See pages 51 and 52.

[3] Italic figures here call attention to the fact that the baby-beef animal is carried somewhat beyond the yearling stage.

the care and management of the herd, is an important factor affecting the cost of the calf.

The greatest item of expense in raising a calf to weaning time, except in the dual-purpose group, is the cow charge, or the part of the total cost of maintaining the breeding cows chargeable to each calf. This is greatest in the beef group and smallest in the dual-purpose group.

The bull charge, or the part of the cost of keeping a bull chargeable to the calf, is greatest, $4.02, in the dual-purpose group and smallest, $2.26, in the beef group. This charge is determined largely by the number of calves produced per bull.

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The cost of raising a calf to weaning time is greatest, $37.74, in the beef group and lowest, $17.82, in the double-nursing group. While the cow charge was lowest in the dual-purpose group, the addition of the cost of feed and labor for the skim-milk calves makes the cost of the calf $23.27 at weaning time, which is somewhat greater than in the double-nursing group.

The cost of the calf at one year was highest, $53.54, in the beef group, with the cost of the calves in the mixed, partially-milked, dual-purpose, and double-nursing groups following in order. Winter-feeding costs indicate that there is comparatively little difference in the cost of keeping the calves of the five groups, other than baby beef, after weaning time.

Two items of expense in producing baby beef, the cost of the calf at weaning time, $37.01, and the cost of feeding the calf from weaning time until it is marketed, $35.02, constitute 90 per cent of the gross cost. The item of "credits" for the baby-beef calves, which amounts to $7.53, includes an allowance for manure and pork.

The beef calves, though the most valuable as yearlings, cost so much more than any of the others that they were the least profitable. Cost of production exceeded inventory value by $15.[1]

The calves in the dual-purpose group, although the poorest in quality, ranked second in point of profit. In this group, where all the cows were milked, credits for milk products are the dominant factor in reducing the cost of production.

In the mixed group, where the practice is a combination of that followed in the dual-purpose and that in the beef group, the cost and value of the calves are intermediate between those of these two groups. As two-thirds of the cows in this group were handled as were cows in the beef group, the figures more nearly approach those for the latter than for the dual-purpose group.

In the partially-milked group, where the breeding cows have nearly the same value as those in the dual-purpose group, the calves cost a little more to produce, but as the increased cost is reflected in the value of the calves, the profit or loss for the two groups is approximately the same.

The cost of production was least for the calves in the double-nursing group, and as these animals were relatively of good quality, they showed the greatest profit. Although there were but 22 farms in this group, the results seem very significant.

The baby-beef calves were produced at an average profit of $0.78 per head. These calves were marketed at an average age of 15 months, weighing 834 pounds at market and selling at $8.61 per hundredweight.

[1] All calves, except those in the baby-beef group, were inventoried just before being turned on pasture. Had they been carried on pasture until the following November they would have made a better financial showing, as gains are made very cheaply while on pasture.

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Generally speaking, the calves were less profitable for 1914 than for 1915, because of the drought conditions prevalent in 1913 over the southern part of the area surveyed. The effect of the drought was most noticeable in those groups where the practice of milking some or all of the cows was followed.

The data obtained indicate that the keeping of cattle for beef purposes alone is adapted to the more extensive types of farming, while the keeping of cattle primarily for beef purposes, but where an income is also obtained from milk products, is better adapted to the more intensive types of farming.

The averages brought out in this investigation would seem to indicate that profits obtained from the raising of calves on corn belt farms are very small. However, these facts must be taken into consideration: (1) Good returns have been obtained for a large quantity of roughage which, had it not been utilized by live stock, would have been waste; (2) a home market has been provided for salable crops; (3) on many farms a large acreage suitable to pasture only has been utilized; (4) profitable employment is provided for a season of the year when labor otherwise might be idle; (5) a return is obtained for capital invested in equipment which, in many instances, were it not utilized by live stock, would return nothing; (6) when the farmer merely breaks even he has at least made 6 per cent interest on the money he has invested in the cattle business.

When all of these factors are taken into consideration, even though there appears to be little or no profit, it is believed that in most cases the farm income is greater because of cattle having been kept on the farm.

SCOPE OF INVESTIGATION.

During the summer of 1914 records were obtained in the States of Indiana, Illinois, Iowa, Missouri, southwestern Minnesota, southeastern South Dakota, and eastern Nebraska and Kansas, the greater part of the records being taken in the Missouri River region.

In 1915 records were taken in approximately the same territory, except that a larger area was covered than before in Minnesota, Iowa, and Kansas, while Indiana, Illinois, and South Dakota were not visited. Additional records were procured in 1915, in order that there might be a larger number of farms to study, and also that any variations due to abnormal climatic conditions might be overcome. This was especially necessary in some of the regions visited, which were affected by the severe drought of the summer of 1913. Sixty-eight of the farms from which records were taken in 1914 were again visited in 1915, that a two years' record might be available from a number of farms, to determine the possible fluctuations that may occur on the same farm in two consecutive years, and also to follow

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up for another year, or until sold, some of the calves on which records were obtained in 1914.

The records were obtained by field men, who got the necessary information directly from the farmers. The data so obtained from each farm were assembled in such a manner that complete analyses could be made of all of the different transactions involved in handling the cattle. The data show, for the cattle business of each farm, all items of expense, all credits, and profit or loss.

While an effort was made to get 20 or more records in each locality, some of the classifications in individual States fall short of the number of records desirable for obtaining reliable averages. In order that variations caused by unusual conditions found on individual farms may be overcome, there should be at least 10, and better, 20 or more records in a group.

Lists of names were secured from persons well acquainted with the cattlemen of their sections. Farms where cows were kept for distinctly dairy purposes or where the herds were maintained only for the production and sale of pure-bred animals for breeding purposes were omitted. Herds having less than five cows and those where correct inventories of the breeding stock could not be obtained were also omitted. Otherwise no discriminations were made by the field men.

The results of this study represent the average of current practices on all the farms visited. It should be remembered in this connection that the farms in question were chosen at random, without reference to the efficiency or inefficiency of practices followed. This being true, it is believed that the records may be considered as representative of the present-day operations of the corn belt stock farm, and that it may reasonably be assumed that the tabulated results show approximately what it costs the average corn-belt stock farmer to maintain a breeding herd, or to produce a beef calf.

DESCRIPTION OF THE DISTRICTS VISITED.

INDIANA.

Twenty-three records (the classification of which is shown in Table 2) were obtained in Monroe and Greene Counties in 1914. The land is rough and broken in practically all of the region where the records were taken. The soil is mostly a silt loam, or clay loam, and is underlain by limestone in Monroe and sandstone in Greene County. The land is best adapted to grazing purposes, and at one time large numbers of beef cattle were raised in this region, but in recent years this number has been greatly reduced.

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ILLINOIS.

Twenty-one records (see Table 2) were obtained in Pike, Adams, and Hancock Counties, in the west-central part of the State, in 1914. The land here is mostly level to slightly rolling, although on a number of farms where the records were taken it was considerably broken. The soil is principally a silt loam.

MINNESOTA.

Sixty records were obtained in six counties in southwestern Minnesota, nearly half of which (see Table 2) were in the dual-purpose group. Records were obtained two years in succession from eight of the farms visited. This region lies largely in the Wisconsin drift area, and the land is level to gently rolling. Much of it requires draining before the best results are obtained.

TABLE 2.—*The classification of the records obtained in the eight States in 1914 and 1915.*

State.	Beef.	Baby beef.	Dual purpose.	Mixed.	Partially milked.	Double nursing.	Total.
Indiana:							
1914	6	.....	1	.....	15	1	23
Illinois:							
1914	13	2	3	.....	1	2	21
Minnesota:							
1914	3	.....	6	8	.....	2	19
1915	9	.....	22	9	.....	1	41
Both years	12	.....	28	17	.....	3	60
Iowa:							
1914	23	15	24	16	3	1	82
1915	53	30	15	24	4	11	137
Both years	76	45	39	40	7	12	219
Missouri:							
1914	24	3	2	2	22	.....	53
1915	9	2	1	2	11	.....	25
Both years	33	5	3	4	33	.....	78
South Dakota:							
1914	6	.....	4	5	.....	.....	15
Nebraska:							
1914	24	6	3	8	1	.....	42
1915	14	3	2	3	1	1	24
Both years	38	9	5	11	2	1	66
Kansas:							
1914	21	.....	10	11	6	.....	48
1915	25	6	17	14	1	3	66
Both years	46	6	27	25	7	3	114
Grand total:							
1914	120	26	53	50	48	6	303
1915	110	41	57	52	17	16	293
Both years	230	67	110	102	65	22	596

IOWA.

Two hundred and nineteen records were obtained in Iowa, all but 20 of which were from the western half of the State. These 20 records were from Marshall, Tama, Benton, and Poweshiek Counties, in the east-central part of the State. Records were obtained two years in succession from 40 farms.

The southwestern quarter of the State is mostly rolling to broken. The soil, which belongs to the Missouri loess series, is very productive. Many of the farmers in this region maintain herds of pure-bred

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or high-grade beef cattle for the production of baby-beef animals, or for the production of calves to be fattened as 2-year-olds. The beef-cattle business is more highly developed and is a more important farm enterprise in this section than in any other part of the State. The majority of the records obtained in this region belong either to the beef or to the baby-beef classification. Plate II shows the general rolling character of the country. The buildings in figure 1 are typical of those on farms producing beef cattle. The high development of the agriculture of this region is shown in figure 2.

In the northwestern quarter of the State the land varies from rolling to level. The soil belongs to the Missouri loess series and is very productive. In recent years the building of large drainage canals in some sections has greatly increased the crop-producing capacity of this region. The farms here are generally smaller than those in the southwestern part of the State, and the beef-cattle business is not nearly so highly developed. While a number of excellent beef and baby-beef records were obtained, the majority of the records belong either to the mixed or to the dual-purpose group, where the calves are largely raised on skim milk and kept until they are 2 years old before they are fed out. A typical farmstead of this region, from which baby-beef records were obtained two years in succession, is shown in Plate I.

In the east-central part of the State the land is mostly level to gently rolling. This is in the great corn-producing section of the State, and the farms are mostly of good size. Formerly a large number of steers were fattened annually in this region. In recent years this practice has been largely discontinued, although some of the leading farmers are now planning to maintain breeding herds and produce baby-beef animals.

MISSOURI.

Seventy-eight records were taken in Missouri, of which 53 were from Putnam and Sullivan Counties and 4 from Nodaway County, all on the northern border of the State. In Putnam and Sullivan Counties the land is of limestone formation and is very rolling. The soil, which is a loam or silt loam underlain with heavy clay, is best adapted to grazing purposes. The cattle are mostly grades, and most of the calves are usually kept until 2 years old and then fattened. The land in Nodaway County is rolling and the type of farming, generally speaking, is similar to that just across the line in southwestern Iowa.

Sixteen of the records were obtained in central Missouri (Boone and Howard Counties), where the land is of a limestone formation and slightly rolling. Bluegrass grows luxuriantly and the region is ideal for the growing of a high grade of stock. A number of farmers

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FIG. 1.—THE BUILDINGS SHOWN ARE TYPICAL FOR BEEF-PRODUCING FARMS IN THIS SECTION.

FIG. 2.—CHARACTERISTIC ROLLING APPEARANCE OF COUNTRY, WITH NUMEROUS FARMSTEADS.

TOPOGRAPHY IN SOUTHWESTERN IOWA.

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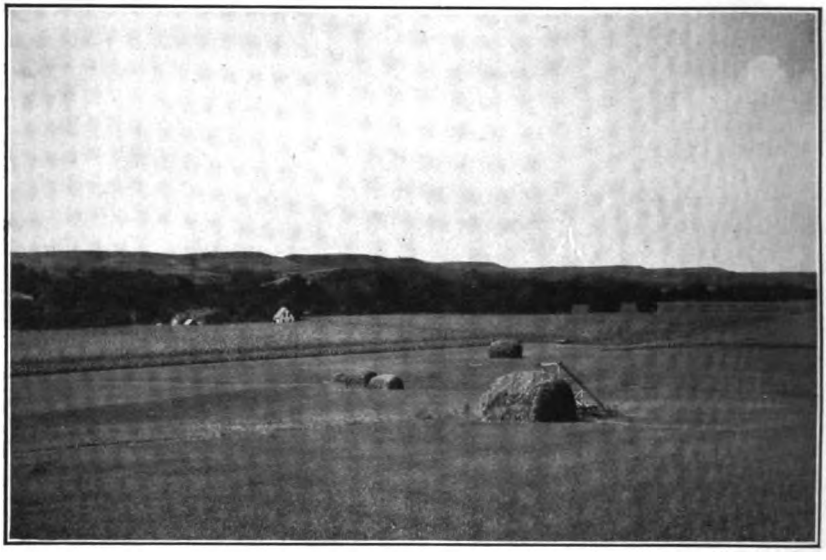

FIG. 1.—A FARM WITH BOTTOM LANDS IN CORN, SLOPING HILLSIDES IN HAY, AND BROKEN LIMESTONE HILLS UTILIZED AS PASTURE.

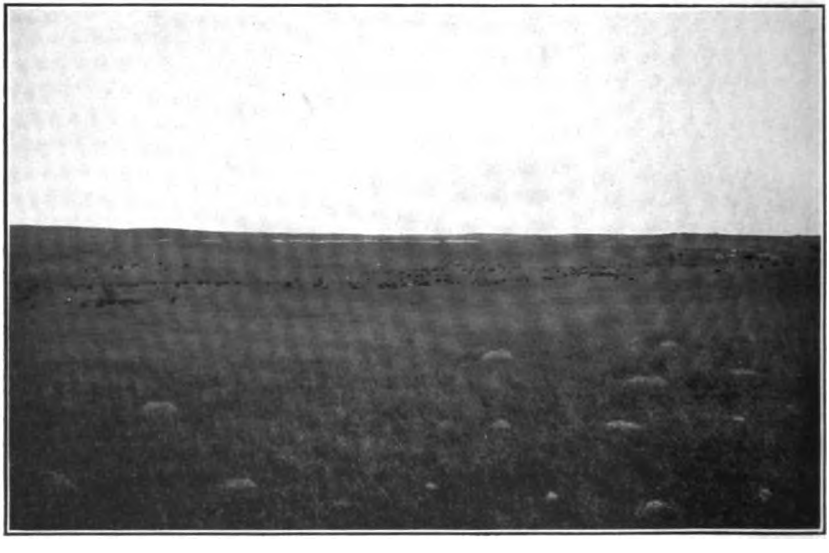

FIG. 2.—A LARGE PASTURE, CHARACTERISTIC OF THOSE FOUND IN THE LIMESTONE SECTION.

TOPOGRAPHY IN NORTHEASTERN KANSAS.

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in this district are producing calves which are in great demand for finishing as baby beef. These are usually sold in the fall and only the breeding herd retained on the farm during the winter months.

Five records were taken in Oregon County, in the south-central portion of the State, where the land is rough and broken and is best adapted to live-stock farming.

SOUTH DAKOTA.

Fifteen records were taken in six counties in southeastern South Dakota in 1914. The farms from which these records were obtained are scattered over a considerable territory, where the farming conditions are very diverse. The most of them are similar to those described in Iowa, while three or four, in addition to having the usual amount of tillable land, also have a large acreage of cheap, sandy pasture land.

NEBRASKA.

Sixty-six records were taken in the eastern quarter of Nebraska, about an equal number being obtained on each side of the Platte River. To the north of the Platte River, average corn belt methods of farming prevail, except on a few farms which possessed large areas of cheap, sandy pasture lands in addition to the regular tilled area. Some of the cattle are owned by farmers of limited means, who are producing animals of average quality. Others are handled by men with large farms and with plenty of working capital, who produce only high-grade animals which are usually finished as 2-year-olds or 3-year-olds, although a few baby beeves are fattened.

To the south of the Platte River, especially in Cass County, where most of the records were obtained, the land is quite rolling and the soil, in general, is a silt loam.

KANSAS.

One hundred and fourteen records were obtained in the eastern third of Kansas. About one-fourth of these came from the northeastern corner of the State, where the land is more or less rolling and the soil is for the most part a silt loam. The farms are mostly small and the majority of the farmers sell some milk products. The remainder of the records are mostly from large farms situated in the so-called limestone section of Kansas, where there is much rough land which is underlain with limestone and is best kept in pastures. In this area the soil in the valleys is very productive and excellent crops are grown, there being large areas in alfalfa. The characteristic topography of the limestone region is shown in Plate III; figure 1 shows a farm where the bottom lands are utilized for the growing of crops, while the broken limestone hills are used for pasture, and figure 2 shows one of the pastures common in this region.

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CLIMATIC CONDITIONS.

In 1913 a severe drought prevailed over a considerable part of the region covered by the survey. The farms in Minnesota, South Dakota, and that portion of northern Nebraska and Iowa that was visited did not suffer to any appreciable extent because of this drought. Its influence was felt in Illinois, but it was not severe enough to affect the feed costs materially. In Indiana, southwestern Iowa, southeastern Nebraska, Missouri, and Kansas practically all the farms visited were affected by this drought. The hay crop was considerably damaged, being almost a failure in Indiana. Corn was also seriously damaged, and in Indiana, but for the fact that much of it was utilized as silage, the crop would have been nearly a failure. The corn crop was very poor in Missouri and a complete failure in northeastern Kansas. On the Kansas farms visited the average yield was only about three-fourths of a ton of fodder, practically without grain. Because of the scarcity of feed, this sold in many instances at the rate of $5 an acre.

Pastures also suffered severely, the most of them being burned up by midsummer, so that it was necessary to supplement pasture with other feeds such as hay and cut fodder. While feed prices were much higher than usual in those sections where the drought prevailed, they did not affect the feed costs as much as might be expected. This is partly because the farmers most affected disposed of their calves and other superfluous stock early in the fall, and maintained only their breeding herds, even these being sometimes cut down. Also, a number of the farmers carried their stock over on rather low maintenance rations.

Fortunately, there were ample fall rains in all of this region, so that the pastures, except in Kansas, revived quickly and furnished much late fall and early winter grazing, which greatly relieved the situation. In Kansas, as a result of these rains, the winter wheat made an unusually luxuriant growth and furnished much pasturage. A number of the Kansas farmers took advantage of these rains and sowed wheat and rye pastures which were grazed practically throughout the entire winter. Thus they were enabled to carry their breeding herds through in fairly good shape without being compelled to buy any large amount of extra feed.

Conditions were much more favorable in 1914. Although the summer was very hot and the precipitation was still less than normal in some sections, this did not seriously affect the crops, except that in parts of southwestern Iowa and southeastern Nebraska corn was somewhat damaged. There was, however, an ample hay crop, and the feed prices were generally normal. In Kansas many of the pastures still showed the effects of the drought and did not carry as much stock as in former years.

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GENERAL INFORMATION CONCERNING THE FARMS VISITED.

The average size and value of the farms visited, together with acreages in pasture, corn, small grain, and hay, is shown in Table 3. The farms in Indiana and Illinois were the smallest, averaging 294 acres, while those in Iowa were slightly larger, averaging a little over 300 acres in size. The next largest farms were found in Minnesota and Missouri, with a little over 355 acres each, and in Nebraska with 380 acres. The largest farms were found in South Dakota and Kansas, where a few ranches increased the average size to 511 and 566 acres, respectively. In Kansas the entire acreage is not shown, as a number of the farmers rented additional pasturage, the rental being at a stipulated sum per head.

TABLE 3.—*The average size and value of farms visited and the percentage of each in pasture, corn, small grain, and hay, by States.*

State.	Number of farms.	Average size of farms.	Area in pasture.		Area in corn.		Area in small grain.		Area in hay.		Value of land.
		Acres.	*Acres.*	*Per cent.*	*Acres.*	*Per cent.*	*Acres.*	*Per cent.*	*Acres.*	*Per cent.*	*Per acre.*
Indiana:											
1914	23	294	191	65	43	15	16	5	25	9	$59
Illinois:											
1914	21	294	158	54	60	20	32	11	38	13	129
Minnesota:											
1914	19	363	121	33	90	25	61	17	45	12	124
1915	41	354	95	27	82	23	68	19	54	15	125
Both years	60	357	104	29	85	24	66	18	51	14	125
Iowa:											
1914	82	296	83	28	90	30	56	19	42	14	175
1915	137	305	98	32	83	27	53	17	36	12	175
Both years	219	301	93	31	85	29	54	18	38	13	175
Missouri:											
1914	53	356	184	52	53	15	39	11	64	18	77
1915	25	357	169	47	54	15	32	9	84	24	92
Both years	78	356	179	50	53	15	36	10	71	20	82
South Dakota:											
1914	14	511	180	35	146	29	90	18	75	15	97
Nebraska:											
1914	42	362	96	27	106	29	74	20	53	15	139
1915	24	410	149	37	103	25	75	18	54	13	122
Both years	66	380	116	31	105	28	74	19	53	14	132
Kansas:											
1914	48	514	294	57	82	16	63	12	60	12	74
1915	66	604	349	57	77	13	62	10	75	12	85
Both years	114	566	326	57	79	15	62	11	69	12	80

The average area devoted to pasture varies from 104 acres, or 29 per cent of the total farm area, in Minnesota to 191 acres, or 65 per cent, in Indiana, where the land is generally rough and broken. The area in corn varies from 43 acres, or 15 per cent of the total farm area, in Indiana to 146 acres, or 29 per cent, in South Dakota and 105 acres, or 28 per cent, in Nebraska. An average of 85 acres, or 29 per cent of the area of the farms visited in Iowa, was planted to corn. The amount of small grain, including oats, wheat, and barley, varied from 5 per cent of the total area in Indiana to 18 per cent in Iowa and South Dakota and 19 per cent in Nebraska. The area of hay on these farms ranged from 9 per cent in Indiana to 20 per cent in Missouri.

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The average value of the land on the Indiana farms, where 65 per cent of the land is in pasture and only 15 per cent in corn, is $59 per acre. In Iowa, where 31 per cent of the farm is in pasture and 29

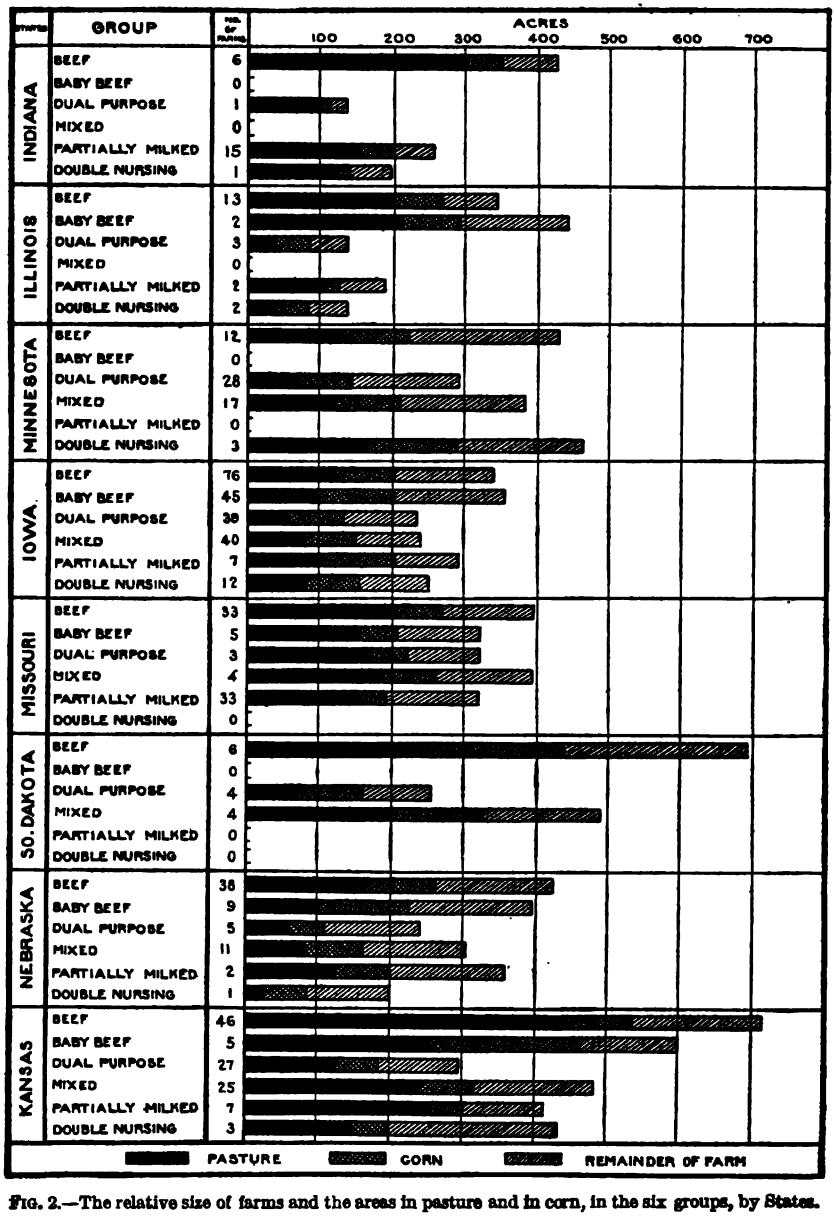

FIG. 2.—The relative size of farms and the areas in pasture and in corn, in the six groups, by States.

per cent in corn, the average value is $175 per acre (see Pl. II). The Nebraska farms, 31 per cent of which were devoted to pasture and 28 per cent to corn, are valued at $132 per acre.

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Generally speaking, on the farms that were visited, the larger the area in corn and the smaller the area in pasture the more valuable the land. The Indiana farmers had an average investment in real estate of less than $20,000, while for the Iowa farmers the same investment was from $50,000 to $55,000.

The farms (see fig. 2) in the beef and baby-beef groups invariably average larger than those in any of the other groups in all States. The dual-purpose group, ignoring cases where there were only one or two records, average the smallest, although in Iowa they were very nearly as large as those in the mixed and double-nursing groups. The farms in the mixed, partially-milked, and double-nursing groups were all intermediate in size between those of the beef and the dual-purpose groups, varying in size more or less according to the State.

The diagram (fig. 2) also shows the comparative area of land in pasture and in corn. In Kansas much additional pasture which is not shown was rented. One 4,500-acre ranch in the baby-beef group, of which 4,200 acres were in pasture, was omitted. One 5,000-acre farm in the mixed group in South Dakota was also omitted, this farm being operated as a unit by a Mennonite colony.

THE BREEDING HERD.

Out of the 595 records obtained, 296 (see Table 4), or nearly one-half, are from the beef and baby-beef groups; 110 belong to the dual-purpose group; 102 to the mixed classification, where some of the best cows are milked; 65 to the partially-milked group, where all of the calves run with the cows, but a part of the milk is taken; and 22 to the double-nursing group, where some of the cows were made to support two calves, the remaining cows being milked. Records were obtained on 14,634 cows and 621 bulls. The average size of the breeding herds was 34.6 cows in the baby-beef, 31.5 in the beef, 23.5 in the mixed, 17.3 in the double-nursing, 14.3 in the partially-milked, and 12.8 in the dual-purpose group.

The average farmer visited keeps one bull, the precise average of bulls per farm being 1.04. Practically all of the farmers in the beef and baby-beef groups keep one or more, the average being 1.23 per farm in the baby-beef and 1.11 in the beef group. In the mixed group nearly every farmer keeps a bull, while a few of them have more than one, the average number per farm being 0.99. In the remaining three groups a number of the farmers do not keep bulls, but depend for service upon the bulls of their neighbors. In a number of instances two farmers would combine in the buying and maintaining of a bull, sharing the cost price and each keeping the bull for a certain part of the year. The average number of bulls in the dual-purpose group is 0.94, while the averages found in the double-nursing and partially-milked groups are 0.91 and 0.92, respectively.

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TABLE 4.—*The size of the herds in each of the different groups.*

Group.	Number of farms.	Cows.		Bulls.	
		Total number.	Average number.	Total number.	Average number.
Beef:					
1914	120	3,543	29.52	129	1.07
1915	110	3,703	33.66	126.5	1.15
Both years	230	7,246	31.50	255.5	1.11
Baby beef:					
1914	25	854	34.22	29	1.16
1915	41	1,427	34.80	52	1.27
Both years	66	2,281	34.56	81	1.23
Dual purpose:					
1914	53	653	12.32	49.25	.93
1915	57	750	13.16	54	.95
Both years	110	1,403	12.75	103.25	.94
Mixed:					
1914	50	1,274	25.48	50.5	1.01
1915	52	1,120	21.54	50.5	.97
Both years	102	2,394	23.47	101	.99
Partially milked:					
1914	48	638	13.30	44.5	.92
1915	17	291	17.12	16	.94
Both years	65	929	14.29	60.5	.92
Double nursing:					
1914	6	99	16.50	5	.83
1915	16	282	17.62	15	.94
Both years	22	381	17.32	20	.91
Grand total or general average:					
1914	302	7,061	23.30	307.25	1.02
1915	293	7,573	25.85	314	1.07
Both years	595	14,634	24.55	621.25	1.04

VALUE OF THE BREEDING HERD.

VALUE OF COWS.

The average inventory value of the cows in the six groups, as shown in Table 5, is $63.[1] The cows in both Iowa and Illinois are inventoried at approximately $66, this being the highest figure for any of the States. In Kansas, Nebraska, South Dakota, and Missouri, the averages range from $61 to $64 per head, while in Minnesota and Indiana, respectively, the average value falls to $57 and $55. The cows in the baby-beef group, being the best bred animals, are worth $70 per head, varying in value from $66 in Missouri to $74 in Kansas. A herd of breeding cows, such as are used for the production of baby-beef calves, is shown in Plate IV, figure 1. The cows in the mixed group are valued at $65, those in the beef and double-nursing groups at $64, and those in the dual-purpose and partially-milked groups at $60.

[1] Before taking up the discussion of the data presented in the following tables, it is desirable that the method used in computing averages in this study be explained, so that there may be no misunderstanding as to how the figures were obtained. The farm is taken as the unit and the averages are based on the number of farms, and not on the total number of animals. For example, in Table 5, the average value of cows in the beef group in Indiana is $59.58. This figure was obtained as follows: The average value per head of the cows on farm No. 1 was $60; on farm No. 2, $50; on farm No. 3, $80, etc. This value for each of the six farms was added and divided by 6, the quotient resulting being $59.58, and this was used as the average value of the cows in this group. This method of computing has been used in obtaining all averages in the data presented, and accounts for the fact that in some instances it is not possible to check figures which, apparently, should check out.

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FIG. 1.—A BREEDING HERD TYPICAL OF THOSE USED IN THE RAISING OF BABY-BEEF CALVES.

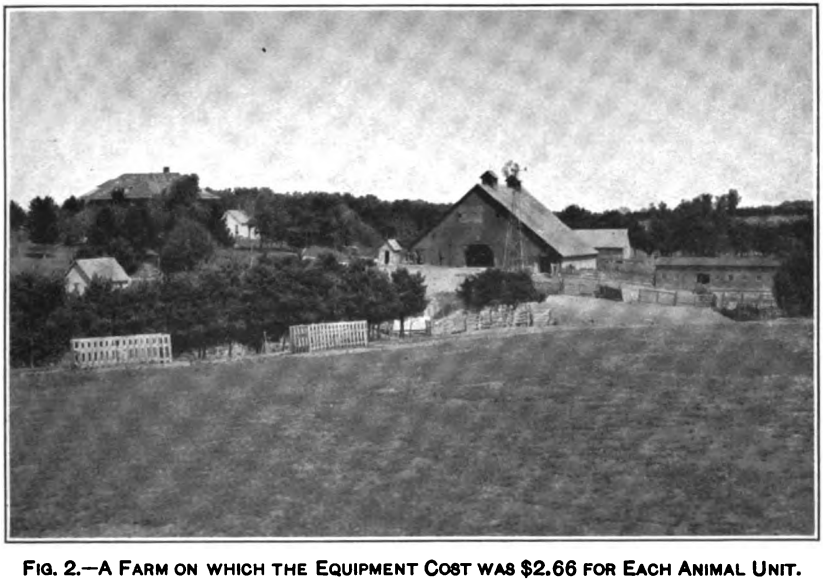

FIG. 2.—A FARM ON WHICH THE EQUIPMENT COST WAS $2.66 FOR EACH ANIMAL UNIT. THE BARNS AND LOTS ARE CHARACTERISTIC FOR FARMS RAISING BEEF ANIMALS IN THE CORN BELT.

FARMS WHICH PRODUCE BEEF ANIMALS.

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TABLE 5.—*A comparison of the values of the cows in the six groups, by States.*

State.	Beef.		Baby beef.		Dual purpose.		Mixed.		Partially milked.		Double nursing.		Total.	
	Number of cows.	Average value.	Number of cows.	Average value.	Number of cows.	Average value.	Number of cows.	Average value.	Number of cows.	Average value.	Number of cows.	Average value.	Number of cows.	Average value.
Indiana:														
1914	99	$59.58	.....	.....	8	$50.00	.....	.....	143	$54.33	12	$50.00	262	$55.33
Illinois:														
1914	273	66.15	105	$68.75	25	60.00	.....	.....	12	75.00	15	63.75	430	65.71
Minnesota:														
1914	67	55.83	.....	.....	73	55.00	246	$73.12	.....	.....	55	62.50	441	63.55
1915	193	54.72	.....	.....	352	54.09	181	55.00	.....	.....	25	55.00	751	54.55
Both years	260	55.00	.....	.....	425	54.29	427	63.53	.....	.....	80	60.00	1,192	57.33
Iowa:														
1914	674	70.22	492	69.82	279	64.08	275	66.72	75	65.83	17	62.50	1,812	67.41
1915	1,686	66.08	931	69.65	182	61.50	382	63.96	76	61.25	183	63.86	3,440	65.67
Both years	2,360	67.33	1,423	69.71	461	63.08	657	65.06	151	63.21	200	63.75	5,252	66.32
Missouri:														
1914	447	65.77	37	67.50	40	63.75	27	57.50	300	62.27	.....	.....	851	62.75
1915	282	63.89	46	65.00	10	75.00	50	82.50	176	62.27	.....	.....	564	65.20
Both years	729	65.26	83	66.25	50	67.50	77	70.00	476	62.27	.....	.....	1,415	63.54
South Dakota:														
1914	181	58.33	.....	.....	44	55.00	244	68.50	.....	.....	.....	.....	469	60.83
Nebraska:														
1914	679	62.50	220	67.08	32	70.83	152	63.75	25	70.00	.....	.....	1,108	64.17
1915	346	62.39	114	66.67	13	72.50	69	65.83	7	65.00	9	55.00	558	64.00
Both years	1,025	62.46	334	66.94	45	71.50	221	64.32	32	67.50	.....	.....	1,666	64.11
Kansas:														
1914	1,123	62.05	.....	.....	152	60.05	330	61.82	83	55.00	.....	.....	1,688	60.70
1915	1,196	60.30	336	74.17	193	59.41	438	67.14	32	50.00	65	75.00	2,260	63.30
Both years	2,319	61.10	.....	.....	345	59.65	768	64.80	115	54.29	.....	.....	3,948	62.20
Grand total or general average:														
1914	3,543	64.43	854	68.90	653	61.48	1,274	66.00	638	59.53	99	60.83	7,061	63.48
1915	3,703	63.19	1,427	69.87	750	58.64	1,120	64.09	291	61.47	282	64.84	7,573	63.39
Both years	7,246	63.83	2,281	69.50	1,403	60.01	2,394	65.02	929	60.04	381	63.75	14,634	63.44

TABLE 6.—*A comparison of the value of the bulls in the six groups, by States.*

State.	Beef.		Baby beef.		Dual purpose.		Mixed.		Partially milked.		Double nursing.		Total.	
	Number of bulls.	Average value.	Number of bulls.	Average value.	Number of bulls.	Average value.	Number of bulls.	Average value.	Number of bulls.	Average value.	Number of bulls.	Average value.	Number of bulls.	Average value.
Indiana:														
1914	6	$102.08	.....	.....	1	$50.00	.....	.....	12.5	$81.96	1	$50.00	20.5	$84.73
Illinois:														
1914	12	90.75	3	$200.00	2	80.00	.....	.....	1	60.00	1	60.00	19	103.63
Minnesota:														
1914	2	100.00	.....	.....	5	75.50	7	$142.14	.....	.....	2	104.00	16	111.28
1915	9	113.89	.....	.....	22	71.68	8	114.68	.....	.....	1	100.00	40	90.43
Both years	11	111.36	.....	.....	27	72.02	15	127.33	.....	.....	3	102.67	56	96.38
Iowa:														
1914	24	156.12	16	137.63	22.75	93.80	16	150.00	3	80.00	1	75.00	82.75	103.49
1915	62.5	125.42	32	155.47	14	91.79	21.5	97.67	4	90.00	11	104.77	145	122.14
Both years	86.5	133.93	48	149.52	36.75	93.03	37.5	120.00	7	85.77	12	102.28	227.75	125.17
Missouri:														
1914	23.5	108.53	2	125.00	3	123.33	2	60.00	21	70.45	.....	.....	51.5	92.62
1915	11	109.09	2	160.00	1	50.00	3	158.33	11	88.64	.....	.....	28	107.86
Both years	34.5	108.70	4	142.50	4	105.00	5	119.00	32	76.70	.....	.....	79.5	97.98
South Dakota:														
1914	6	120.00	.....	.....	4	91.25	7	183.93	1	112.50	.....	.....	17	139.56
Nebraska:														
1914	28	122.16	8	145.63	3	132.50	7	102.14	.....	.....	.....	.....	47	123.62
1915	16	99.22	4	184.37	2	100.00	3	101.57	.....	.....	1	100.00	26	112.68
Both years	44	113.82	12	158.54	5	119.50	10	102.00	.....	.....	.....	.....	73	119.73
Kansas:														
1914	27.5	118.05	.....	.....	8.5	68.38	11.5	108.70	6	67.50	.....	.....	53.5	102.47
1915	28	129.64	14	187.14	15	75.17	15	135.29	1	150.00	2	87.50	75	127.29
Both years	55.5	123.90	.....	.....	23.5	72.71	26.5	118.64	7	79.29	.....	.....	128.5	117.35
Grand total or general average:														
1914	129	120.82	29	145.41	49.25	90.06	50.5	134.01	44.5	74.64	5	113.60	307.25	113.57
1915	126.5	120.80	52	166.39	54	78.51	50.5	112.65	15	92.81	15	90.17	314	116.88
Both years	255.5	120.81	81	158.80	103.25	84.02	101	123.33	60.5	79.45	20	96.08	621.25	115.24

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VALUE OF BULLS.

The comparative value of bulls in the six groups for the eight States is shown in Table 6. The average value for all bulls is $115. As many of these bulls were yearlings and had not yet attained their full value, the quality of the animals is somewhat higher than is indicated by the figures given. As in the case of the cows, the bulls in the baby-beef group are the best animals, having an average value of $159. The value of bulls in the mixed group averages $123; in the beef group, $121; in the double-nursing group, $96.03; in the partially-milked group, $80; and in the dual-purpose group, $84. The average value of bulls in each of the States is generally in keeping with that of cows. Practically all of the bulls used in the beef, baby-beef, and mixed groups are pure bred.

GROSS COST OF MAINTAINING THE BREEDING HERD.

In ascertaining the cost of maintaining the breeding herd, the charges for cows and bulls have been worked up separately. This was done because the charges for bulls vary somewhat from those for cows, as bulls frequently receive extra feed and better care than do cows, and also because some of the other charges for these animals must naturally be apportioned differently.

COST OF KEEPING A COW.

Tables 7 to 12, inclusive, show the annual farm cost of keeping a cow in each of the six groups for the year beginning May 1, 1913, and ending April 30, 1914, which in this report is designated as "1914"; and for the year beginning May 1, 1914, and ending April 30, 1915, designated as "1915." In these tables practically all of the items of expense, except for salt and for depreciation in value, have been included. No depreciation was figured, as it was found that the cows were generally sold for beef when 7 or 8 years old, usually bringing enough more than their value upon entering the herd to cover the cost of the extra feed used in fitting them for market.

The following items of expense have been included in the tabulations: Feed, labor, equipment, interest, taxes, insurance (against fire, lightning, and tornado), risk (or loss by death), and veterinary expenses.

Cost of keeping a cow in the beef group.—The average farm cost of keeping a beef cow a year for 230 farms, having a total of 7,246 breeding cows, as shown in Table 7, is $35.12. The greatest item of expense is feed, which amounts to $24.69, making 70.3 per cent of the total. This feed cost is divided into summer feed, which amounts to $8.20, and winter feed, which averages $16.49. The winter-feed bill, which is double that for the summer months, is mostly for roughage, only 10 per cent of the charge being for grain. The next heaviest charge

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TABLE 7.—*The various items of expense of keeping a cow 1 year, based on averages for 230 farms in the beef group.*

State.	Number of farms.	Number of cows.	Average cost per cow.										
			Feed charges.			Labor.	Equipment.	Interest.	Risk.	Taxes.	Insurance.	Veterinary.	Total.
			Summer.	Winter.	Entire year.								
Indiana:													
1914	6	99	$8.21	$16.49	$24.70	$5.14	$3.16	$3.57	$0.43	$0.78	$0.06	$0.65	$38.49
Illinois:													
1914	13	273	8.95	18.71	27.66	4.69	2.52	3.97	.43	.37	.02	.22	39.88
Minnesota:													
1914	3	67	4.67	16.81	21.48	6.10	1.07	3.35	.43	.26	.02	.00	32.71
1915	9	193	4.93	18.72	23.65	4.45	2.10	3.25	.43	.31	.04	.09	34.32
Both years	12	260	4.87	18.24	23.11	4.86	1.84	3.28	.43	.30	.03	.07	33.92
Iowa:													
1914	23	674	10.65	15.15	25.80	3.64	2.52	4.21	.43	.27	.09	.13	37.09
1915	53	1,686	8.36	18.74	27.10	3.19	2.38	3.98	.43	.28	.07	.08	37.51
Both years	76	2,360	9.06	17.65	26.71	3.33	2.42	4.05	.43	.28	.08	.09	37.39
Missouri:													
1914	24	447	7.86	14.53	22.39	5.35	1.64	3.97	.43	.26	.02	.26	34.32
1915	9	282	9.88	10.97	20.85	3.61	1.28	3.88	.43	.28	.09	.07	30.44
Both years	33	729	8.41	13.56	21.97	4.87	1.54	3.93	.43	.27	.04	.21	33.26
South Dakota:													
1914	6	181	6.98	11.83	18.81	2.89	.68	3.50	.43	.25	.00	.16	26.72
Nebraska:													
1914	24	679	8.92	14.25	23.17	3.38	1.22	3.75	.43	.45	.07	.18	32.65
1915	14	346	7.81	13.32	21.13	2.94	1.53	3.74	.43	.32	.05	.20	30.34
Both years	38	1,025	8.51	13.91	22.42	3.22	1.33	3.75	.43	.40	.06	.19	31.80
Kansas:													
1914	21	1,123	6.01	21.58	27.59	4.02	.72	3.72	.43	.36	.09	.02	36.95
1915	25	1,196	8.20	15.61	23.81	4.23	.96	3.55	.43	.42	.02	.07	33.49
Both years	46	2,319	7.20	18.33	25.53	4.13	.85	3.63	.43	.39	.06	.05	35.07
Grand total or general average:													
1914	120	3,543	8.30	16.30	24.60	4.21	1.67	3.87	.43	.35	.06	.18	35.37
1915	110	3,703	8.10	16.70	24.80	3.53	1.83	3.78	.43	.32	.06	.10	34.85
Both years	230	7,246	8.20	16.49	24.69	3.88	1.75	3.83	.43	.34	.06	.14	35.12

TABLE 8.—*The various items of expense of keeping a cow 1 year, based on averages for 66 farms in the baby-beef group.*

State.	Number of farms.	Number of cows.	Average cost per cow.										
			Feed charges.			Labor.	Equipment.	Interest.	Risk.	Taxes.	Insurance.	Veterinary.	Total.
			Summer.	Winter.	Entire year.								
Illinois:													
1914	2	105	$8.21	$12.34	$20.55	$3.31	$1.95	$4.13	$0.43	$0.35	$0.05	$0.14	$30.91
Iowa:													
1914	15	492	10.23	17.28	27.51	2.57	3.41	4.19	.43	.26	.17	.06	38.60
1915	30	931	8.45	18.01	26.46	3.12	2.14	4.18	.43	.28	.11	.11	36.83
Both years	45	1,423	9.05	17.76	26.81	2.94	2.56	4.18	.43	.28	.13	.09	37.42
Missouri:													
1914	2	37	12.00	16.48	28.48	4.28	1.52	4.05	.43	.26	.09	.38	39.49
1915	2	46	8.75	18.54	27.29	2.94	.28	3.90	.43	.29	.06	.00	35.19
Both years	4	83	10.37	17.51	27.88	3.61	.90	3.97	.43	.28	.08	.19	37.34
Nebraska:													
1914	6	220	9.55	17.59	27.14	3.90	2.10	4.02	.43	.44	.08	.15	38.26
1915	3	114	8.75	8.41	17.16	3.92	1.56	4.00	.43	.41	.11	.23	27.82
Both years	9	334	9.28	14.53	23.81	3.91	1.92	4.02	.43	.43	.09	.18	34.79
Kansas:													
1915	6	336	8.75	18.27	27.02	2.78	1.36	4.45	.43	.39	.00	.06	36.49
Grand total or general average:													
1914	25	854	10.04	16.90	26.94	3.09	2.83	4.13	.43	.31	.13	.11	37.97
1915	41	1,427	8.53	17.37	25.90	3.12	1.89	4.19	.43	.31	.09	.11	36.04
Both years	66	2,281	9.11	17.19	26.30	3.11	2.25	4.16	.43	.31	.10	.11	36.77

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is for labor, which is $3.88 per year, followed by interest ($3.83) and equipment ($1.75). The items of taxes, insurance, and veterinary services are very small, totaling about 1½ per cent of the entire cost. The heaviest total cost, $39.88, is found in Illinois; the lowest, $26.72, in South Dakota. In the remaining States costs range from $31.80 in Nebraska to $38.49 in Indiana. It is significant that in Iowa the costs were practically the same for both years. It will be noted that with the exception of Minnesota the costs were generally greater in 1914 than in 1915. This difference is due to the drought of 1913, which was especially severe in Kansas and Missouri. This is shown by the fact that the winter-feed cost in Kansas was $21.58 in 1914 as against $15.61 in 1915.

Cost of keeping a cow in the baby-beef group.—The average cost of keeping a cow in the baby-beef group (as shown in Table 8) is $37.97 for 1914 and $36.04 for 1915, with an average of $36.77 for the two years. This is $1.65 greater than the average cost of keeping a cow in the beef group. (The cow in the baby-beef group gets somewhat better care than the beef cow.) This cost varies from $27.82 for three farms in Nebraska in 1915 to $39.49 for two farms in Missouri in 1914. Most of the records were obtained in Iowa, where the average cost was $37.42. Because of the drought of 1913, the maintenance cost of these cows was a little greater in 1914 than in 1915. Of the total cost, 71.5 per cent was for feed, which amounted to $26.30. The interest charge averaged $4.16, while the labor amounted to $3.11. The minor items of expense were practically the same as for the beef group.

Cost of keeping a cow in the dual-purpose group.—The average cost of keeping a cow for the 110 farms in the dual-purpose group (see Table 9) is $55.14, or practically $20 greater than for the beef and baby-beef groups. This difference is due to the extra feed and labor necessary in the production of milk. The average cost of feed is $32.05, or a little over 58 per cent of the total charge. While the summer-feed costs in this group are slightly less than in the two preceding groups, the winter-feed costs are a third greater, because of the additional grain required in milk production. In this group the grain bill makes approximately one-fourth of the total expense of winter feed. The labor charge, which is $15.23, makes a little over one-fourth of the entire cost. The charge for equipment, $3.32, is also higher than in the preceding groups, the dual-purpose animals being, of necessity, better stabled. The total cost per head, omitting one farm in Indiana, varies from $44.57 in Nebraska to $62.07 for three farms in Illinois.

Cost of keeping a cow in the mixed group.—The average cost of keeping a cow for 102 farms in the mixed group, as shown in Table 10, is $43.95. This cost is intermediate between those of the dual-

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TABLE 9.—*The various items of expense of keeping a cow 1 year, based on averages for 110 farms in the dual-purpose group.*

State.	Number of farms.	Number of cows.	Average cost per cow.										
			Feed charges.			Labor.	Equipment.	Interest.	Risk.	Taxes.	Insurance.	Veterinary.	Total.
			Summer.	Winter.	Entire year.								
Indiana:													
1914	1	8	$9.00	$10.44	$19.44	$12.96	$2.84	$3.00	$0.43	$0.78	$0.00	$0.00	$39.45
Illinois:													
1914	3	25	9.89	26.09	35.98	18.81	2.80	3.60	.43	.35	.00	.10	62.07
Minnesota:													
1914	6	73	7.42	31.30	38.72	14.15	5.63	3.33	.43	.26	.09	.00	62.61
1915	22	352	5.10	25.42	30.52	16.59	2.90	3.25	.43	.31	.05	.02	51.07
Both years	28	425	5.60	26.68	32.28	16.06	3.49	3.26	.43	.30	.06	.02	55.90
Iowa:													
1914	24	279	10.05	25.26	35.31	13.90	3.79	3.84	.43	.25	.11	.10	57.73
1915	15	182	8.50	26.77	35.27	14.54	3.47	3.69	.43	.27	.07	.09	57.83
Both years	39	461	9.46	25.84	35.30	14.14	3.67	3.78	.43	.26	.09	.10	57.77
Missouri:													
1914	2	40	9.00	16.83	25.83	14.24	3.60	3.82	.43	.26	.00	.20	48.38
1915	1	10	8.75	15.89	24.64	11.57	4.77	4.50	.43	.28	.04	.00	46.23
Both years	3	50	8.92	16.52	25.44	13.34	3.99	4.05	.43	.27	.01	.13	47.66
South Dakota:													
1914	4	44	5.04	22.32	27.36	14.08	1.88	3.23	.43	.44	.00	.08	47.50
Nebraska:													
1914	3	32	8.33	12.48	20.81	10.03	4.02	4.25	.43	.37	.06	.00	39.97
1915	2	13	5.75	22.72	28.47	15.72	2.05	4.35	.43	.30	.13	.00	51.45
Both years	5	45	7.30	16.58	23.88	12.31	3.23	4.29	.43	.34	.09	.00	44.57
Kansas:													
1914	10	152	7.11	21.95	29.06	13.12	3.12	3.60	.43	.32	.07	.21	49.93
1915	17	193	8.86	21.84	30.70	18.54	2.75	3.56	.43	.40	.08	.41	56.87
Both years	27	345	8.21	21.89	30.10	16.53	2.89	3.58	.43	.37	.07	.33	54.30
Grand total or general average:													
1914	53	653	8.65	23.83	32.48	13.85	3.06	3.68	.43	.30	.07	.11	54.58
1915	57	750	7.20	24.45	31.65	16.51	3.01	3.52	.43	.33	.07	.15	55.67
Both years	110	1,403	7.90	24.15	32.05	15.23	3.32	3.60	.43	.31	.07	.13	55.14

TABLE 10.—*The various items of expense of keeping a cow 1 year, based on averages for 102 farms in the mixed group.*

State.	Number of farms.	Number of cows.	Average cost per cow.										
			Feed charges.			Labor.	Equipment.	Interest.	Risk.	Taxes.	Insurance.	Veterinary.	Total.
			Summer.	Winter.	Entire year.								
Minnesota:													
1914	8	246	$5.04	$16.62	$21.66	$10.03	$2.73	$4.46	$0.43	$0.26	$0.07	$0.03	$39.67
1915	9	181	4.26	22.18	26.44	9.85	2.13	3.30	.43	.31	.09	.05	42.60
Both years	17	427	4.62	19.57	24.19	9.93	2.42	3.85	.43	.28	.08	.04	41.22
Iowa:													
1914	16	275	8.99	21.79	30.78	8.92	3.35	3.97	.43	.27	.12	.07	47.91
1915	24	382	7.74	21.77	29.51	10.50	3.20	3.84	.43	.29	.08	.20	48.05
Both years	40	657	8.24	21.78	30.02	9.86	3.26	3.89	.43	.28	.10	.15	47.99
Missouri:													
1914	2	27	6.75	21.88	28.63	9.60	2.74	3.45	.43	.26	.01	.00	45.12
1915	2	50	9.50	26.65	36.15	11.41	2.45	4.95	.43	.28	.11	.17	55.95
Both years	4	77	8.13	24.26	32.39	10.50	2.60	4.20	.43	.27	.06	.09	50.54
South Dakota:													
1914	5	244	7.14	17.19	24.33	5.79	.98	4.11	.43	.27	.00	.04	35.95
Nebraska:													
1914	8	152	10.76	22.28	33.04	7.32	1.22	3.82	.43	.50	.02	.18	46.53
1915	3	69	7.50	13.58	21.08	7.16	1.88	3.95	.43	.38	.05	.00	34.93
Both years	11	221	9.87	19.91	29.78	7.27	1.40	3.86	.43	.47	.03	.13	43.37
Kansas:													
1914	11	330	6.91	20.12	27.03	8.28	2.06	3.71	.43	.33	.01	.05	41.92
1915	14	438	6.92	17.37	24.29	8.22	1.21	4.03	.43	.40	.06	.11	38.75
Both years	25	768	6.91	18.58	25.49	8.24	1.60	3.89	.43	.37	.04	.08	40.14
Grand total or general average:													
1914	50	1,274	7.91	20.21	28.12	8.41	2.37	3.96	.43	.32	.06	.07	43.74
1915	52	1,120	6.97	20.37	27.34	9.62	2.37	3.84	.43	.33	.08	.14	44.15
Both years	102	2,394	7.47	20.30	27.73	9.03	2.37	3.90	.43	.32	.07	.10	43.96

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purpose and the beef and baby-beef groups. This would naturally be expected, as the feed and labor costs for the cows milked would be practically the same as for those in the dual-purpose group, while these charges for the cows that are not milked would be practically the same as for those in the first two groups. This cost varies from $35.95 in South Dakota to $50.54 in Missouri, the difference being largely due to the difference in feed and labor costs in the two States. In Kansas and Nebraska the feed and labor costs are greater for 1914 than for 1915. In Missouri this condition is reversed. The reason for this may be that the Missouri cows, because of the early drying up of the pastures, did not produce enough milk to justify heavy feeding or extra care during the winter months.

Cost of keeping a cow in the partially-milked group.—The average cost of keeping a cow for 65 farms in the partially-milked group, as shown in Table 11, is $42.75, or $1.20 less than for those in the mixed group. The average feed bill, $26.05, made 61 per cent of the total cost, while the labor charge, $9.84, amounted to 23 per cent of the total. The feed cost in this group seems to reflect the influence of the drought but very little, although a number of the farms on which records were obtained suffered from its effect. The total cost of keeping a cow varied from $36.65 in Nebraska (two records) and $38.29 in Kansas to $45.42 in Indiana (not considering one farm in Illinois).

Cost of keeping a cow in the double-nursing group.—The average cost of keeping a cow for 22 farms in the double-nursing group (where some of the cows are made to support two calves) was $46.50, or $2.55 greater than for the mixed, and $3.75 greater than for the partially milked groups (see Table 12). The items of feed, $28.89, and labor, $9.80, are nearly the same as in those two groups. The average cost for Iowa, where this type of business is most prevalent, was $47.15. The records in the remaining States are too few in number to justify the drawing of any conclusions.

A comparison of the various items of expense in keeping a cow.—A comparison of the various items of expense for keeping a cow a year in each of the six groups is shown in Table 13. The proportion of the total cost that each of these charges constitutes is shown in Table 14. The feed charge, as previously stated, is the largest item of expense, varying from $24.69 for the cows in the beef group to $32.05 for those in the dual-purpose group. In the remaining groups this charge ranges from $26 to $29. It constitutes from 58.1 per cent of the total cost in the dual-purpose to 70.3 per cent in the beef and 71.5 per cent in the baby-beef group.

The labor item is the next heaviest charge in all except the baby-beef group. The heaviest labor cost is found in the dual-purpose

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TABLE 11.—*The various items of expense of keeping a cow 1 year, based on averages for 65 farms in the partially-milked group.*

State.	Number of farms.	Number of cows.	Average cost per cow.										
			Feed charges.			Labor.	Equipment.	Interest.	Risk.	Taxes.	Insurance.	Veterinary.	Total.
			Summer.	Winter.	Entire year.								
Indiana:													
1914	15	143	$8.85	$20.45	$29.30	$9.01	$2.59	$3.22	$0.43	$0.78	$0.02	$0.07	$45.42
Illinois:													
1914	1	12	10.50	23.38	33.88	8.42	3.75	4.50	.43	.35	.12	.00	51.45
Iowa:													
1914	3	75	7.33	19.65	26.98	8.16	2.27	3.95	.43	.27	.05	.27	42.38
1915	4	76	8.67	19.21	27.88	7.80	2.59	3.68	.43	.28	.12	.19	42.97
Both years	7	151	8.09	19.40	27.49	7.96	2.45	3.79	.43	.27	.09	.23	42.71
Missouri:													
1914	22	300	8.20	17.30	25.50	12.55	2.08	3.74	.43	.26	.07	.09	44.72
1915	11	176	7.81	15.55	23.36	8.61	1.59	3.74	.43	.28	.10	.21	38.32
Both years	33	476	8.07	16.71	24.78	11.24	1.92	3.74	.43	.27	.08	.13	42.59
Nebraska:													
1914	1	25	9.00	21.65	30.65	4.85	2.20	4.20	.43	.37	.14	2.00	44.84
1915	1	7	6.50	7.34	13.84	7.82	2.00	3.90	.43	.35	.12	.00	28.46
Both years	2	32	7.75	14.50	22.25	6.33	2.10	4.05	.43	.36	.13	1.00	36.65
Kansas:													
1914	6	83	5.96	17.24	23.20	8.14	2.87	3.30	.43	.32	.08	.00	38.34
1915	1	32	8.00	17.69	25.69	7.99	.43	3.00	.43	.45	.00	.00	37.99
Both years	7	115	6.25	17.30	23.55	8.11	2.53	3.26	.43	.34	.07	.00	38.29
Grand total or general average:													
1914	48	638	8.13	18.64	26.77	10.37	2.39	3.56	.43	.43	.06	.12	44.13
1915	17	291	7.95	16.05	24.00	8.34	1.78	3.69	.43	.29	.10	.18	38.81
Both years	65	929	8.08	17.97	26.05	9.84	2.23	3.59	.43	.40	.07	.14	42.75

TABLE 12.—*The various items of expense of keeping a cow 1 year, based on averages for 22 farms in the double-nursing group.*

State.	Number of farms	Number of cows.	Average cost per cow.										
			Feed charges.			Labor.	Equipment.	Interest.	Risk.	Taxes.	Insurance.	Veterinary.	Total.
			Summer.	Winter.	Entire year.								
Indiana:													
1914	1	12	$12.00	$12.31	$24.31	$10.38	$4.24	$3.00	$0.43	$0.78	$0.00	$1.00	$44.14
Illinois:													
1914	2	15	11.50	21.08	32.58	13.08	2.88	3.82	.43	.36	.06	.00	53.21
Minnesota:													
1914	2	55	6.58	17.65	24.23	6.18	3.08	3.75	.43	.26	.00	.00	37.93
1915	1	25	4.80	19.65	24.45	4.64	2.92	3.30	.43	.31	.04	.00	36.09
Both years	3	80	5.99	18.31	24.30	5.67	3.02	3.60	.43	.28	.01	.00	37.31
Iowa:													
1914	1	17	10.97	16.83	27.80	9.84	4.41	3.75	.43	.28	.12	.00	46.63
1915	11	183	8.25	21.64	29.89	9.98	2.55	3.83	.43	.29	.09	.14	47.20
Both years	12	200	8.48	21.24	29.72	9.98	2.70	3.82	.43	.29	.09	.12	47.15
Nebraska:													
1915	1	9	7.50	19.85	27.35	6.09	5.92	3.30	.43	.35	.07	.00	43.51
Kansas:													
1915	3	65	8.27	21.50	29.77	12.03	2.97	4.50	.43	.40	.00	.33	50.43
Grand total or general average:													
1914	6	99	9.85	17.77	27.62	9.79	3.43	3.65	.43	.38	.04	.17	45.51
1915	16	282	7.99	21.38	29.37	9.80	2.86	3.89	.43	.31	.06	.16	46.88
Both years	22	381	8.50	20.39	28.89	9.80	3.01	3.82	.43	.33	.05	.17	46.50

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group, amounting to $15.23, or 27.6 per cent of the total expense. The lowest labor charges are $3.11 in the baby-beef and $3.88 in the beef group. In the remaining three groups, where only the best cows are milked, the labor item ranges from $9.03 to $9.84 and forms from

TABLE 13.—*The various items of expense of keeping a cow 1 year, compared by groups.*

Group.	Number of farms.	Feed.	Labor.	Equipment.	Interest.	Risk.	Taxes.	Insurance.	Veterinary.	Total.
Beef:										
1914	120	$24.60	$4.21	$1.67	$3.87	$0.43	$0.35	$0.06	$0.18	$35.37
1915	110	24.80	3.53	1.88	3.78	.43	.32	.06	.10	34.85
Both years	230	24.69	3.88	1.75	3.83	.43	.34	.06	.14	35.12
Baby beef:										
1914	25	26.94	3.09	2.83	4.13	.43	.31	.13	.11	37.97
1915	41	25.90	3.12	1.89	4.19	.43	.31	.09	.11	36.04
Both years	66	26.30	3.11	2.25	4.16	.43	.31	.10	.11	36.77
Dual purpose:										
1914	53	32.48	13.85	3.66	3.68	.43	.30	.07	.11	54.58
1915	57	31.65	16.51	3.01	3.52	.43	.33	.07	.15	55.67
Both years	110	32.05	15.23	3.32	3.60	.43	.31	.07	.13	55.14
Mixed:										
1914	50	28.12	8.41	2.37	3.96	.43	.32	.06	.07	43.74
1915	52	27.34	9.62	2.37	3.84	.43	.33	.08	.14	44.15
Both years	102	27.73	9.03	2.37	3.90	.43	.32	.07	.10	43.95
Partially milked:										
1914	48	26.77	10.37	2.39	3.56	.43	.43	.06	.12	44.13
1915	17	24.00	8.34	1.78	3.69	.43	.29	.10	.18	38.81
Both years	65	26.05	9.84	2.23	3.59	.43	.40	.07	.14	42.75
Double nursing:										
1914	6	27.62	9.79	3.43	3.65	.43	.38	.04	.17	45.51
1915	16	29.37	9.80	2.86	3.89	.43	.31	.06	.16	46.88
Both years	22	28.89	9.80	3.01	3.82	.43	.33	.05	.17	46.50

TABLE 14.—*The relation that each item of expense bears to the total cost of keeping a cow, by groups.*

Group.	Number of farms.	Feed.	Labor.	Equipment.	Interest.	Risk.	Taxes.	Insurance.	Veterinary.	Total.
Beef:		*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
1914	120	69.55	11.90	4.72	10.94	1.22	0.99	0.17	0.51	100
1915	110	71.16	10.13	5.25	10.85	1.23	.92	.17	.29	100
Both years	230	70.30	11.05	4.98	10 91	1.22	.97	.17	.40	100
Baby beef:										
1914	25	70.95	8.14	7.45	10.88	1.13	.82	.34	.29	100
1915	41	71.86	8.66	5.24	11.63	1.19	.86	.25	.31	100
Both years	66	71.53	8.46	6.12	11.31	1.17	.84	.27	.30	100
Dual purpose:										
1914	53	59.51	25.37	6.71	6.74	.79	.55	.13	.20	100
1915	57	56.85	29.66	5.41	6.32	.77	.59	.13	.27	100
Both years	110	58.12	27.62	6.02	6.53	.78	.56	.13	.24	100
Mixed:										
1914	50	64.29	19.23	5.42	9.05	.98	.73	.14	.16	100
1915	52	61.92	21.79	5.37	8.70	.97	.75	.18	.32	100
Both years	102	63.09	20.55	5.39	8.87	.98	.73	.16	.23	100
Partially milked:										
1914	48	60.66	23.50	5.42	8.07	.97	.97	.14	.27	100
1915	17	61.84	21.49	4.58	9.51	1.11	.75	.26	.46	100
Both years	65	60.93	23.01	5.22	8.40	1.01	.94	.16	.33	100
Double nursing:										
1914	6	60.69	21.51	7.54	8.02	.95	.84	.08	.37	100
1915	16	62.65	20.90	6.10	8.30	.92	.66	.13	.34	100
Both years	22	62.13	21.08	6.47	8.21	.92	.71	.11	.37	100

20 to 23 per cent of the total cost. The interest charge is second to the feed cost in the baby-beef group, amounting to $4.16, or 11.3 per cent of the total charge. In the remaining five groups the interest charge ranks third, varying from 6.5 per cent for the dual-purpose to 10.9 per cent for the beef group.

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The equipment charge, which ranks fourth in importance, varies from $1.75 for beef animals to $3.32 for dual-purpose cows. As will be seen in Table 14, the equipment charge constitutes from 5 to 6.5 per cent of the total cost. The item of risk, which amounts to 43 cents, forms approximately three-fourths to 1¼ per cent, while taxes, insurance, and veterinary expenses taken together approximate a little over 1 per cent of the total cost.

Methods used in obtaining the various costs.

Feed.—The feed year, beginning with May 1 and ending with April 30, is divided into the summer, or grazing, period and the winter feeding period. The grazing season usually runs from May 1 until approximately the 1st of November, although in Kansas and Nebraska and on individual farms in the other States the stock are turned out as early as the 1st of April. On some of the farms in Missouri, Kansas, and southern Iowa the stock are allowed to run on pasture or are grazed on supplemental grain crops all winter, receiving extra roughage and grain during bad weather. In some regions, especially in Iowa, the farmers usually supplement the regular pasture by giving the cattle the run of the meadows for a month to six weeks during September and October, after which they are usually turned into the cornstalk fields.

Because of the drought that prevailed in 1913, many of the pastures dried up in early summer, necessitating the feeding of extra hay and grain. This was especially true of farms in the dual-purpose group. A number of the farmers also fed green-corn fodder when their pastures began to fail. As the summer of 1914 was much more favorable, the feeding of additional roughage while the stock were on pasture was not nearly so prevalent as in the preceding year, although the carrying capacity of the pastures in some sections, notably Kansas, was still much lower than normal. This supplemental roughage, wherever it is a factor, has been included with the summer feed.

The winter feeding season has, for convenience in tabulation, been figured as beginning with the time the cattle were turned on the stalk fields, which is about November 1. The majority of the cattle run on these fields, where they are usually fed some hay, especially in stormy weather, until January 1, and some of them are allowed to run until April 1. Winter feeding usually begins about January 1 and continues until approximately May 1, when the cattle are turned on pasture. The heaviest feeding is usually practiced from the 1st of February to the middle of April or 1st of May, the average farmers feeding from three-fourths to 1 ton of hay per head, and usually some grain, during this period.

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Labor.—The labor charge is based on the total number of hours of man labor and horse labor spent on each farm in caring for the breeding herd. The man labor was figured at 15 cents an hour, while horse labor was considered worth 10 cents an hour. These prices are higher than some farmers estimated them; they are, however, much less than many farmers actually pay. They are based on figures obtained from detailed cost accounting work of a number of years' duration on several farms in this region.

Equipment.—The equipment charges were worked up in the following manner: First, the building charges were obtained by taking an inventory of that part of the buildings actually used by the cattle. It was estimated that interest, taxes, insurance, and depreciation on the buildings would amount to approximately 10 per cent. Multiplying the total charge by this figure, the yearly charge for the herd is obtained. This yearly charge was divided by the total number of animal units using the building (considering three calves as equal to one animal unit), which gave the charge for each animal unit. The yard charges were figured in the same manner, except that a charge of 6 per cent was used to cover interest and taxes on land and the maintenance of fences and other minor equipment. A farm on which the equipment charge was $2.66 is shown in Plate IV, figure 2. The barns and lots are characteristic of those found on farms in the corn belt that are producing beef animals.

Interest.—Interest on cattle has been figured at 6 per cent per annum on the average inventory for one year. This figure was assumed to be a fair one, although it is a little less than the average rate of live-stock loans in these States. It is, however, a trifle higher than the average loans on real estate. The interest charges in the different groups vary, of course, according to the valuation of the animals, being greatest on the animals in the baby-beef group and least on the dual-purpose cows.

Risk.—The term "risk," as used in this report, designates the loss by death which is not covered by insurance. Where animals that were lost were insured, these were considered as having been sold to the insurance companies. In most instances the losses incurred were not due to any lack of care on the part of the owners, but rather to circumstances which could not have been forestalled. Consequently, it was thought best not to figure this loss against any individual farm or group of farms, but rather to prorate it equally among all. The risk was obtained by finding the total value of all cows lost and dividing this figure by the total number of cows on which records were obtained. The average risk, based on the two years' records, amounted to 43 cents a cow, there being a loss of approximately eight-tenths of 1 per cent.

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Taxes.—Few of the farmers visited could tell the amount of taxes paid on live stock without examining their tax receipts. This method was impracticable because of the time entailed, and in order that a correct estimate of taxes might be made, data were procured from the county treasurers of those counties in which records were obtained showing the average tax per head on the different classes of cattle. The tax varies from 24 to 38 cents per head on cows, and from 27 to 39 cents per head on bulls, except in Indiana where, on each, it amounts to 78 cents per head.

Insurance.—The insurance carried on cattle was almost altogether for protection against fire, lightning, or tornado. Only one health policy on live stock was found. The insurance charge was obtained by prorating the total amount of the premium paid among the live stock insured, according to their value.

Approximately 70 per cent of the farmers carried insurance on their cattle, the figures varying from less than 20 per cent in South Dakota and Indiana to about 85 per cent in Minnesota. Of the farmers running baby-beef herds, 75 per cent carry insurance on their cattle, while 60 per cent of those in the dual-purpose group and 50 per cent of those with strictly beef herds insured their cattle. About two-thirds of this insurance is carried in mutual companies, which are usually county organizations. The remaining one-third is old-line insurance. The largest herds are frequently not insured, as their owners consider that during a period of years it is cheaper to take the risk than to pay the premiums. This charge constitutes from one-tenth to three-tenths of 1 per cent of the total cost.

Veterinary expenses.—The veterinary expenses on the cows, and on the calves up to the time of weaning, have been figured against the cows. After weaning time or, in case of skim-milk calves, after they are put on winter feed at 6 to 8 months of age, the calves bear their own veterinary charges, which are mostly for vaccination against blackleg.

About 2 per cent of the farms visited reported trouble with contagious abortion. It is probable that another 2 per cent were troubled with this disease, as there were a number of farms visited where the calf crop was abnormally low, but where the farmer was unable to give any explanation as to the reason. While the percentage of farms having contagious abortion is comparatively low, the heavy loss incurred on those farms where it is found makes it apparent that the disease is an important factor to be considered by the man who is raising cattle.

COST OF KEEPING A BULL.

The average farm cost of keeping a bull for a year in the baby-beef group, where the animals are higher priced and better cared for than in other groups, is $50.61 (see Table 15). Many of these bulls

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are kept apart from the herd and fed extra grain rations during a part or all of the year. The lowest maintenance cost ($41.23) is in the beef group, where bulls are mostly allowed to run with the cows. The cost of maintaining a bull in the remaining groups varied from $43.39 in the partially-milked to $47.53 in the mixed group. The lowest average maintenance cost (ignoring groups with less than 10 records) is $33.77 for 16 bulls in the Nebraska beef group for 1915, while the highest average maintenance cost is $55.79 for each of the 16 bulls in the baby-beef group in Iowa in 1914.

TABLE 15.—*The average maintenance cost per farm of keeping a bull 1 year in each of the six groups.*

State.	Beef.		Baby beef.		Dual purpose.		Mixed.		Partially milked.		Double nursing.	
	Number of bulls.	Cost.	Number of bulls.	Cost.	Number of bulls.	Cost.	Number of bulls.	Cost.	Number of bulls.	Cost.	Number of bulls.	Cost.
Indiana:												
1914	6	$42.89	.....	.....	1	$33.20	.....	.....	12.5	$42.39	1	$45.53
Illinois:												
1914	12	35.13	3	$39.23	2	32.77	.....	.....	1	52.57	1	27.02
Minnesota:												
1914	2	25.49	.....	.....	5	48.89	7	$42.81	.....	.....	2	42.52
1915	9	44.36	.....	.....	22	45.58	8	49.08	.....	.....	1	40.89
Both years.	11	39.65	.....	.....	27	46.29	15	46.12	.....	.....	3	41.98
Iowa:												
1914	24	44.88	16	55.79	22.75	52.79	16	53.37	3	45.20	1	49.58
1915	62.5	47.41	32	52.07	14	49.65	21.5	49.67	4	46.76	11	50.01
Both years.	86.5	46.65	48	53.32	36.75	51.59	37.5	51.15	7	46.09	12	49.98
Missouri:												
1914	23.5	35.50	2	44.12	3	46.43	2	46.58	21	44.10	.....	.....
1915	11	35.21	2	44.29	1	39.12	3	61.22	11	45.35	.....	.....
Both years.	34.5	35.41	4	44.21	4	43.99	5	53.90	32	44.52	.....	.....
South Dakota:												
1914	6	32.42	.....	.....	4	42.35	7	33.18	.....	.....	.....	.....
Nebraska:												
1914	28	41.88	8	49.02	3	39.04	7	42.58	1	47.54	.....	.....
1915	16	33.77	4	46.97	2	44.77	3	37.84	.....	.....	1	52.86
Both years.	44	38.90	12	48.34	5	41.33	10	41.28	1	23.77	.....	.....
Kansas:												
1914	27.5	42.36	.....	.....	8.5	37.24	11.5	43.06	6	41.10	.....	.....
1915	28	40.68	14	49.07	15	42.81	15	50.59	1	46.15	2	28.01
Both years.	55.5	41.45	.....	.....	23.5	40.75	26.5	47.28	7	41.82	.....	.....
Grand total or general average:												
1914	129	39.71	29	51.45	49.75	46.11	50.5	45.40	44	43.51	5	39.04
1915	126.5	42.89	52	50.11	54	45.68	50.5	49.58	16	43.06	15	45.49
Both years.	255.5	41.23	81	50.61	103.75	45.89	101	47.53	60	43.39	20	43.73

While the items of expense for maintaining a bull a year are the same as those enumerated for keeping a cow, they nevertheless vary in amount considerably from those for keeping a cow. A comparison of Tables 13 and 15 shows that in the baby-beef group the average farm cost of keeping a bull is $13.84 greater than for a cow. This difference is partly due to the larger charges for interest, risk, taxes, and insurance, resulting from the greater value of the bull; and also, as previously explained, to an increased cost of feed and labor. The bulls in the beef group cost $6.11 more for a year's keep than did the cows. On the other hand, the bulls in the dual-

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purpose group were carried for $9.25 a year less than the cows, the latter, because of the labor of milking, naturally having a much higher labor cost. In the three remaining groups the year's maintenance charges for a bull were very nearly the same as for a cow, the bulls in the double-nursing group costing $2.77 less, while those in the mixed and partially-milked groups cost $3.58 and 64 cents more, respectively.

The feed bill for bulls, which was worked up in exactly the same manner as for cows, was a little greater than that for the latter in the beef and baby-beef groups. In the mixed group the feed charges for bulls and cows were practically the same, while in the remaining three groups they were a little less for the bulls. The labor costs, also worked up in the same manner as for the cows, were a little greater for bulls than for cows in the baby-beef group, practically the same in the beef, a little less in the mixed, partially-milked, and double-nursing, and only one-third as great in the dual-purpose group. The equipment charges, as previously explained, were prorated among the animals using the buildings, and were generally the same for bulls as for the cows. The interest charge is naturally greater than for the cows, this charge averaging from $8.61 for the bulls in the baby-beef group to $4.48 for those in the partially-milked group. Insurance and taxes were obtained in the same manner as for cows, and were slightly greater than for the latter.

The risk, or loss by death, on bulls was naturally greater than for cows. In the first place, the percentage of loss was double that for cows, being 1.9 per cent, while the inventory value was also nearly double. This risk charge, because of the loss of some expensive bulls, amounted to $2.47 per head. As the veterinary charges were for only a few bulls, these, when prorated among all the animals, become almost negligible.

In getting data on the depreciation of bulls, it was found that under certain circumstances the animals depreciated in value, while in other instances there was an actual appreciation. The factors governing the appreciation or depreciation of these animals are discussed on page 36.

NET COST OF MAINTAINING THE BREEDING HERD.

The preceding discussion has been confined to the consideration of the various items of expense that make up the gross cost of keeping a cow or a bull for one year on the average corn belt farm. In determining the actual or net cost of keeping such animals, there are certain items of credit which must also be considered.

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NET COST OF MAINTAINING A COW.

In determining the net cost of maintaining a cow, the two principal credits to be considered are milk and manure. In addition to these, there is a small credit (shown in Table 27) for extra calves in the beef group. It is probable that where the breeding herd is fed corn fodder or ear corn there should in some instances be a small credit for pork. This figure, however, was unobtainable, and would be too small to have any appreciable effect on the results.

The milk credit.—There were no milk credits in the beef or the baby-beef groups, as it was found that where only one or two of the best cows were milked and the milk used for household purposes the extra care required in milking these cows and handling their calves usually offset the value of the milk products. In the other four groups, the milk credits consist of the milk products that were sold; the milk, cream, and butter that were used on the home table; and the whole and skim milk fed to calves and hogs. The value of the milk products sold from the majority of the farms was estimated on the basis of butter fat at 25 cents per pound. On several farms cream was sold at 75 or 80 cents per gallon, in which cases these figures were used. A value of 25 cents per pound for butter fat was also placed on the butter and cream used in the house. The milk used by the family and that fed to the calves was valued at 9 cents per gallon. The skim milk fed to the calves and pigs was credited at 20 cents per hundredweight. The values given the various milk products were based on the average prices which prevailed throughout the region during the years covered by the records.

In the dual-purpose group, the average value per cow of milk products sold and used on the farm is $43.38. (See Table 16.) The value of milk products sold is $13.33 less for 1914 than for 1915. This difference may be attributed to the early drying up of the pastures because of the drought of 1913. The milk credits for 1914 are less than those for 1915 in all of the States except Minnesota, where normal climatic conditions prevailed. The value of the milk products per cow milked is greatest in the double-nursing group, amounting to $51.38. It seems that where this practice is followed heavier milkers are kept than are found on the average farm. When the value of the total milk products of the farm is prorated among all of the cows in the herd, the average milk credit for a cow drops to $28.24.

In the mixed group, where 37 per cent of the cows are milked, the value of the milk products for those milked is $49.15, and is slightly lower than for the cows milked in the double-nursing group. These credits are larger than for the cows in the dual-purpose group, as only the best cows are milked. When the milk products are prorated among all the cows in the herd, the credit drops to $20.29, which is

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the figure used in the tabulations. In the partially-milked group, where the calves get a part of the milk, the average credit per cow is $16.88. In spite of the fact that the majority of farms in this group were affected by the drought, the milk credits are greater in the 1914 records than in those for 1915. This difference may be accounted for by the fact that different farms were visited in each year and that a larger percentage of the milk was taken on the farms visited the first year.

TABLE 16.—*The average value of milk products of the cows that were milked.*

State.	Dual purpose.			Mixed.			Partially milked.			Double nursing.		
	Number of farms.	Number of cows per farm.	Value per cow.	Number of farms.	Number of cows per farm.	Value per cow.	Number of farms.	Number of cows per farm.	Value per cow.	Number of farms.	Number of cows per farm.	Value per cow.
Indiana:												
1914	1	8.0	$20.70	.....	.....	.....	15	9.6	$15.75	1	12.0	$11.38
Illinois:												
1914	3	8.3	30.48	.....	.....	.....	1	12.0	37.20	2	8.5	43.88
Minnesota:												
1914	6	12.2	44.94	8	7.6	$50.88	.....	.....	.....	2	8.5	38.61
1915	22	16.0	45.78	9	8.3	55.55	.....	.....	.....	1	7.0	57.32
Both years.	28	15.2	45.60	17	8.0	53.35	.....	.....	.....	3	8.0	44.85
Iowa:												
1914	24	11.6	39.56	16	6.5	50.88	3	25.0	20.27	1	8.0	39.38
1915	15	12.1	53.31	24	8.2	52.48	4	19.0	17.44	11	8.1	53.33
Both years.	39	11.8	44.85	40	7.6	51.84	7	21.6	18.65	12	8.1	52.17
Missouri:												
1914	2	20.0	21.58	2	7.5	34.80	22	13.6	17.15	.....	.....	.....
1915	1	10.0	48.63	2	15.5	39.74	11	16.0	14.26	.....	.....	.....
Both years.	3	16.7	30.60	4	11.5	37.27	33	14.4	16.19	.....	.....	.....
South Dakota:												
1914	4	11.0	40.36	5	14.8	48.53	.....	.....	.....	.....	.....	.....
Nebraska:												
1914	3	10.7	27.45	8	6.2	41.36	1	25.0	11.60	.....	.....	.....
1915	2	6.5	62.43	3	8.3	49.51	1	7.0	20.39	1	3.0	59.33
Both years.	5	9.0	41.45	11	6.8	43.59	2	16.0	15.99	.....	.....	.....
Kansas:												
1914	10	15.2	31.52	11	9.2	43.09	6	13.8	19.84	.....	.....	.....
1915	17	11.4	50.52	14	10.4	49.13	1	32.0	8.57	3	13.3	70.44
Both years.	27	12.8	43.49	25	9.9	46.47	7	16.4	18.23	.....	.....	.....
Grand total or general average:												
1914	53	12.32	36.48	50	8.10	46.76	48	13.30	17.54	6	7.33	35.96
1915	57	13.16	49.81	52	9.14	51.45	17	17.12	15.04	16	8.69	57.16
Both years.	110	12.75	43.38	102	8.63	49.15	65	14.29	16.88	22	8.22	51.38

The manure credit.—The manure credit was obtained by getting the farmer's estimate of the number of loads of manure hauled out on his farm and what he considered it to be worth per load. Those farmers who made no attempt to utilize manure gave it no value, while a few farmers considered it worth as much as $5 a load to them. The majority placed a value of $1 a load, in the barnyard, on manure. The total farm value of manure was prorated among the animals which produced it. In Kansas, where the farmers have only recently begun to realize the importance of manure in maintaining fertility, its value was the lowest, while in Iowa and Illinois, where the land is

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high-priced, its value was much greater. The average manure credit per animal unit was $4.50, this varying from $3.26 in the mixed group in Kansas to $7.37 for the dual-purpose animals in Iowa.

Net cost of keeping a cow in the beef group.—The average net cost per farm of keeping a beef cow is shown in the first part of Table 17. The principal credit in this group is for manure, which averages $4.77, ranging from $3.43 in Kansas to $5.90 in Iowa. In addition, there is also a small credit, averaging 2 cents, for extra calves. This is due to the fact that on one of the Nebraska farms six additional calves were purchased and were given to some of the best cows to support, in addition to their own calves. These calves were credited to the herd at the difference between their inventory value at weaning time and their purchase cost, which credit amounts to $3.79 per cow.

The net cost of keeping a cow in this group averages $30.33, varying from $22.96 for six farms with 181 cows in South Dakota to $33.98 in Illinois.

Net cost of keeping a cow in the baby-beef group.—The net cost of keeping baby-beef cows, as shown in Table 18, is $31.38, the only credit being for manure, which averaged $5.39, ranging from $3.36 in Kansas to $5.84 in Iowa and $5.90 in Illinois.

Net cost of keeping a cow in the dual-purpose group.—In this group there are two credits to be considered: First, that for milk and its products; second, that for manure. The value of milk products per cow varies from $30.48 in Illinois (not considering the one farm in Indiana) to $45.60 in Minnesota. The effects of the drought of 1913 are strikingly shown in the credits for milk products in this group. With the exception of Minnesota, where the rainfall was normal both years, the pastures dried up early in midsummer of 1913. As a result, these credits averaged $13.33 less in the 1914 records than in those of the following year. In Iowa this difference amounted to $13.75, while in Kansas, where the drought was more severe, it amounted to $19. There was a still greater difference for the five Nebraska farms in this group.

Manure was worth from $4.27 in Kansas to $7.37 in Iowa and Illinois, its average value for the group being $5.69. This is slightly higher than the average manure credit for the baby-beef farms, and approximately $1 greater than in the beef group.

In three States the total credits for the farms visited in 1915 were greater than the cost of maintaining the cows, so that these animals, instead of having a debit to be carried over against the calves, actually presented the latter with a credit. In other words, the calves in these three States were produced without cost, and the cows had a credit for milk which, considering that this report deals with the

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TABLE 17.—*The average net cost per farm of keeping breeding animals 1 year in the beef group.*

State.	Number of farms.	Cows.					Bulls.					
		Number.	Gross cost.	Credit for extra calves.	Manure credit.	Net cost.	Number.	Maintenance cost.	Depreciation.	Appreciation.	Manure credit.	Net cost.
Indiana:												
1914	6	99	$38.49	.....	$4.08	$34.41	6	$42.89	$4.12	.....	$4.08	$42.93
Illinois:												
1914	13	273	39.88	.....	5.90	33.98	12	35.13	1.48	.....	4.99	31.62
Minnesota:												
1914	3	67	32.71	.....	3.76	28.95	2	25.49	1.12	.....	2.51	24.10
1915	9	193	34.32	.....	3.76	30.56	9	44.36	.93	.....	3.76	41.53
Both years	12	260	33.92	.....	3.76	30.16	11	39.65	.97	.....	3.45	37.17
Iowa:												
1914	23	674	37.09	.....	5.90	31.19	24	44.88	13.95	.....	5.39	53.44
1915	53	1,686	37.51	.....	5.90	31.61	62.5	47.41	7.24	.....	5.57	49.08
Both years	76	2,360	37.39	.....	5.90	31.49	86.5	46.65	9.26	.....	5.51	50.40
Missouri:												
1914	24	447	34.32	.....	4.08	30.24	23.5	35.50	2.62	.....	3.74	34.38
1915	9	282	30.44	.....	4.08	26.36	11	35.21	.89	.....	4.08	32.02
Both years	33	729	33.26	.....	4.08	29.18	34.5	35.41	2.15	.....	3.83	33.73
South Dakota:												
1914	6	181	26.72	.....	3.76	22.96	6	32.42	10.04	.....	3.76	38.70
Nebraska:												
1914	24	679	32.65	.....	4.94	27.71	28	41.88	4.91	.....	4.94	41.85
1915	14	346	30.34	$0.27	4.94	25.13	16	33.77	.....	$3.91	4.58	25.28
Both years	38	1,025	31.80	.10	4.94	26.76	44	38.90	1.66	.....	4.81	35.75
Kansas:												
1914	21	1,123	36.95	.....	3.43	33.52	27.5	42.36	3.40	.....	3.43	42.33
1915	25	1,196	33.49	.....	3.43	30.06	28	40.68	9.94	.....	3.29	47.33
Both years	46	2,319	35.07	.....	3.43	31.64	55.5	41.45	6.95	.....	3.35	45.05
Grand total or general average:												
1914	120	3,543	35.37	.....	4.66	30.71	129	39.71	5.66	.....	4.36	41.01
1915	110	3,703	34.85	.04	4.89	29.92	126.5	42.89	5.40	.....	4.65	43.64
Both years	230	7,246	35.12	.02	4.77	30.33	255.5	41.23	5.54	.....	4.50	42.27

TABLE 18.—*The average net cost per farm of keeping breeding animals 1 year in the baby-beef group.*

State.	Number of farms.	Cows.				Bulls.					
		Number.	Gross cost.	Manure credit.	Net cost.	Number.	Maintenance cost.	Depreciation.	Appreciation.	Manure credit.	Net cost.
Illinois:											
1914	2	105	$30.91	$5.90	$25.01	3	$39.23	$22.79	.....	$5.90	$56.12
Iowa:											
1914	15	492	38.60	5.81	32.79	16	55.02	9.45	.....	5.81	58.66
1915	30	931	36.83	5.86	30.97	32	51.02	8.87	.....	5.66	54.23
Both years	45	1,423	37.42	5.84	31.58	48	52.36	9.06	.....	5.71	55.71
Missouri:											
1914	2	37	39.49	4.08	35.41	2	44.12	.....	6.78	4.08	33.26
1915	2	46	35.19	4.21	30.98	2	44.29	14.00	.....	4.21	54.08
Both years	4	83	37.34	4.15	33.19	4	44.21	3.61	.....	4.15	43.67
Nebraska:											
1914	6	220	38.26	4.94	33.32	8	49.02	14.01	.....	4.94	58.09
1915	3	114	27.82	4.94	22.88	4	46.97	2.22	.....	4.94	44.25
Both years	9	334	34.79	4.94	29.85	12	48.34	10.08	.....	4.94	53.48
Kansas:											
1915	6	336	36.49	3.36	33.13	14	49.07	.....	5.67	3.36	40.04
Grand total or general average:											
1914	25	854	37.97	5.46	32.51	29	51.45	10.31	.....	5.47	56.29
1915	41	1,427	36.04	5.35	30.69	52	50.11	6.51	.....	5.20	51.42
Both years	66	2,281	36.77	5.39	31.38	81	50.61	7.95	.....	5.30	53.26

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cost of raising beef animals, is carried over for the benefit of the calves.

The average net cost of keeping a cow for one year in this group was $6.07, ranging from $24.22 for the 1914 records in Illinois to a credit of $3.04 for five farms in Nebraska. For 1914 the average net cost of keeping a cow is $12.02, while for 1915 it is only 53 cents. This would indicate that under normal conditions the cows in this group are very nearly self-supporting.

Net cost of keeping a cow in the mixed group.—The average net cost of maintaining a cow in the mixed group (see Table 20) is $19.23, ranging from $15.92 in South Dakota to $25.13 in Missouri. In this group the milk credits averaged $20.29, while manure credits were $4.43 per cow. The manure on the farms in this group is generally not quite as well cared for as on the farms in the beef and dual-purpose groups.

Net cost of keeping a cow in the partially-milked group.—For the 65 farms in this group, the average net cost of keeping a cow is $21.32, being nearly the same for both 1914 and 1915. This cost (not considering one farm in Illinois) ranges from $15.39 in Nebraska to $25.32 in Indiana in 1914. The average milk credit is $16.88, while the average manure credit is $4.55.

Net cost of keeping a cow in the double-nursing group.—The average net cost of keeping a cow on the 22 farms in this group is $13.24, varying from $28.88 and $28.21 in Indiana and Illinois, respectively, to a credit of $5.61 for three farms in Kansas in 1915. The milk credits average $28.24, while the manure credits are $5.02.

NET COST OF MAINTAINING A BULL.

In determining the cost of keeping a bull there is a credit for manure which is the same as for the cows. In addition to the manure credit, the items of depreciation and appreciation must also be considered. As previously stated, the item of depreciation was not figured with the other expenses of maintaining a bull for a year, as it frequently occurred that the bulls actually appreciated in value. In getting data to determine what the depreciation might be, the difference between the purchase and the sale price of the bulls, as well as the length of time that the bulls were kept, was considered.

The farmers with small herds usually paid less for their bulls than those with large herds. Many of the farmers with small herds followed the practice of buying calves or yearlings of good quality, which were sold, after one or two years' use, for considerably more than their purchase price. The majority of the farmers having 25 or more cows purchased older bulls, which were usually of excellent quality and were kept for three to five years. In general, it was

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TABLE 19.—*The average net cost per farm of keeping breeding animals 1 year in the dual-purpose group.*

State.	Number of farms.	Cows.					Bulls.					
		Number.	Gross cost.	Milk credit.	Manure credit.	Net cost.[1]	Number.	Maintenance cost.	Depreciation.	Appreciation.	Manure credit.	Net cost.
Indiana:												
1914	1	8	$39.45	$20.70	$5.07	$13.68	1	$33.20	.....	$11.17	$5.07	$16.96
Illinois:												
1914	3	25	62.07	30.48	7.37	24.22	2	32.77	.....	7.06	4.91	20.80
Minnesota:												
1914	6	73	62.61	44.94	4.68	12.99	5	48.89	.....	1.63	3.90	43.36
1915	22	352	54.07	45.78	4.68	3.61	22	45.58	.....	8.04	4.68	32.86
Both years.	28	425	55.90	45.60	4.68	5.62	27	46.29	.....	6.67	4.51	35.11
Iowa:												
1914	24	279	57.73	39.56	7.37	10.80	22.75	52.79	1.12	.....	7.37	46.54
1915	15	182	57.83	53.31	7.37	−2.85	14	49.65	1.08	.....	6.88	43.85
Both years.	39	461	57.77	44.85	7.37	5.55	36.75	51.89	1.10	.....	7.18	45.51
Missouri:												
1914	2	40	48.38	21.58	5.07	21.73	3	46.43	14.09	.....	5.07	55.45
1915	1	10	46.23	48.63	5.07	−7.47	1	39.12	.....	25.00	5.07	9.05
Both years.	3	50	47.66	30.60	5.07	11.99	4	43.99	1.06	.....	5.07	39.98
South Dakota:												
1914	4	44	47.50	40.36	4.68	2.46	4	42.35	2.63	.....	4.68	40.30
Nebraska:												
1914	3	32	39.97	27.45	6.16	6.36	3	39.04	7.55	.....	6.16	40.43
1915	2	13	51.45	62.43	6.16	−17.14	2	44.77	1.25	.....	6.16	39.86
Both years.	5	45	44.57	41.45	6.16	−3.04	5	41.33	5.03	.....	6.16	40.20
Kansas:												
1914	10	152	49.93	31.52	4.27	14.14	8.5	37.24	.....	4.02	3.84	29.38
1915	17	193	56.87	50.52	4.27	2.08	15	42.81	.....	8.90	3.77	30.14
Both years.	27	345	54.30	43.49	4.27	6.54	23.5	40.75	.....	7.09	3.79	29.87
Grand total or general average:												
1914	53	653	54.58	36.48	6.08	12.02	49.25	46.11	0.11	.....	5.77	40.45
1915	57	750	55.67	49.81	5.33	0.53	54	45.68	.....	5.87	5.04	34.77
Both years.	110	1,403	55.14	43.38	5.69	6.07	103.25	45.89	.....	2.98	5.40	37.51

[1] Minus quantities indicate excess of credits above costs.

TABLE 20.—*The average net cost per farm of keeping breeding animals 1 year in the mixed group.*

State.	Number of farms.	Cows.					Bulls.					
		Number.	Gross cost.	Milk credit.	Manure credit.	Net cost.	Number.	Maintenance cost.	Depreciation.	Appreciation.	Manure credit.	Net cost.
Minnesota:												
1914	8	246	$39.67	$14.29	$3.56	$21.82	7	$42.81	$11.72	.....	$3.12	$51.41
1915	9	181	42.60	25.75	3.56	13.29	8	49.06	2.00	.....	3.17	47.91
Both years.	17	427	41.22	20.35	3.56	17.31	15	46.12	6.58	.....	3.14	49.56
Iowa:												
1914	16	275	47.91	18.24	5.62	24.05	16	53.37	15.94	.....	5.62	63.69
1915	24	382	48.05	27.63	5.62	14.80	21.5	49.67	.....	$2.84	5.15	41.68
Both years.	40	657	47.99	23.87	5.62	18.50	37.5	51.15	4.67	.....	5.34	50.48
Missouri:												
1914	2	27	45.12	19.15	3.88	22.09	2	46.58	.....	8.52	3.88	34.18
1915	2	50	55.95	23.90	3.88	28.17	3	61.22	.....	4.16	3.88	53.18
Both years.	4	77	50.54	21.53	3.88	25.13	5	53.90	.....	6.34	3.88	43.68
South Dakota:												
1914	5	244	35.96	16.47	3.56	15.92	7	33.18	9.17	.....	2.85	39.50
Nebraska:												
1914	8	152	46.53	16.07	4.70	25.76	7	42.58	3.37	.....	4.11	41.84
1915	3	69	34.93	17.90	4.70	12.33	3	37.84	.....	.91	4.70	32.23
Both years.	11	221	43.37	16.57	4.70	22.10	10	41.28	2.20	.....	4.27	39.21
Kansas:												
1914	11	330	41.92	16.16	3.26	22.50	11.5	43.06	1.84	.....	3.26	41.64
1915	14	438	38.75	17.18	3.26	18.31	15	50.59	.....	.91	3.26	46.42
Both years.	25	768	40.14	16.73	3.26	20.15	26.5	47.28	.30	.....	3.26	44.32
Grand total or general average:												
1914	50	1,274	43.74	16.66	4.35	22.73	50.5	45.40	8.49	.....	4.11	49.78
1915	52	1,120	44.15	23.79	4.51	15.85	50.5	49.58	.....	1.43	4.22	43.93
Both years.	102	2,394	43.95	20.29	4.43	19.23	101	47.53	3.43	.....	4.17	46.79

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found that bulls costing under $80 appreciated in value, while animals costing from $80 to $110 sell approximately at cost. The majority of animals costing in excess of $110 were sold at a sacrifice. The more valuable the bull the greater the depreciation.

Net cost of keeping a bull in the beef group.—The average net cost of keeping a bull in the beef group for one year is shown in the second part of Table 17. In this group the average depreciation was $5.54 per bull, varying from 97 cents in Minnesota to $10.04 in South Dakota. There was an average appreciation of $3.91 for 16 bulls found on Nebraska farms in 1915.

The manure credit averaged $4.50 per bull, or a little lower than that for cows ($4.77). While the same credit per animal unit was used in both cases, the credit for the bulls is less because of the fact that these are averaged according to the number of farms, and as there were several farms on which there were no bulls, the average would naturally be less.[1]

Net cost of keeping a bull in the baby-beef group.—The average net cost of keeping a bull in the baby-beef group was $53.26, or nearly $11 greater than for a beef bull (see second part of Table 18). The average depreciation per bull was $7.95, ranging from an appreciation of $5.67 in Kansas to a depreciation of $22.79 in Illinois. Some of the Kansas bulls were actually higher priced than those in Illinois. However, they were on large farms that maintained pure-bred herds and where some of the best bull calves were sold to ranchers and other stockmen. These farmers, being located in a region where large numbers of bulls are produced for the range, were able to dispose of their bulls to ranchers at a price greater than their inventory value. The heavy depreciation of the Illinois bulls was due to the fact that two of the bulls on one farm were valued at $250 each. As their owner had no way of disposing of his bulls except through the stock markets for approximately $100 each, there would naturally be a total depreciation of $150 per head, which, considering that the animals were kept three years, would give an annual depreciation charge of $50 per head.

It will be noticed that in a number of States there is a wide difference in the depreciation figures for the two years. For instance, in Missouri there was a depreciation of $6.78 in 1914, as compared with an appreciation of $14 for the 1915 records. These differences are partly due to the fact that the records are from different farms, and frequently from different localities. They are also partly due to the drought of 1913, since many of the bulls sold in the fall of that year were not in as good flesh as those sold in the fall of the following year.

[1] In Illinois, two of the 13 farms kept no bull. One of the remaining 11 farms had two bulls. The total average credit per bull per farm was $64.90 (11 times $5.90), which, divided by 13 farms, equals $4.99.

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TABLE 21.—*The average net cost per farm of keeping breeding animals 1 year in the partially-milked group.*

State.	Number of farms.	Cows.					Bulls.					
		Number.	Gross cost.	Milk credit.	Manure credit.	Net cost.	Number.	Maintenance cost.	Depreciation.	Appreciation.	Manure credit.	Net cost.
Indiana:												
1914	15	143	$45.42	$15.75	$4.35	$25.32	12.5	$42.39	.....	$4.64	$3.77	$33.98
Illinois:												
1914	1	12	51.45	37.20	6.30	7.95	1	52.57	.....	11.17	6.30	35.10
Iowa:												
1914	3	75	42.38	20.27	6.30	15.81	3	45.20	.....	3.45	6.30	35.45
1915	4	76	42.97	17.44	6.30	19.23	4	46.76	$0.19	.....	6.30	40.65
Both years	7	151	42.71	18.65	6.30	17.76	7	46.09	.....	1.37	6.30	38.42
Missouri:												
1914	22	300	44.72	17.15	4.35	23.22	21	44.10	.....	4.75	4.15	35.20
1915	11	176	38.32	14.26	4.35	19.71	11	45.35	.....	7.58	4.35	33.42
Both years	33	476	42.59	16.19	4.35	22.05	32	44.52	.....	5.69	4.22	34.61
Nebraska:												
1914	1	25	44.84	11.60	5.27	27.97	1	47.54	.00	.00	5.27	42.27
1915	1	7	28.46	20.39	5.27	2.80	0	.....	.....	.....	.....	.....
Both years	2	32	36.65	15.99	5.27	15.39	1	23.77	.00	.00	2.63	21.14
Kansas:												
1914	6	83	38.34	19.84	3.67	14.83	6	41.10	.....	6.22	3.67	31.21
1915	1	32	37.99	8.57	3.67	25.75	1	46.15	.....	8.57	3.67	33.91
Both years	7	115	38.29	18.23	3.67	16.39	7	41.82	.....	6.56	3.67	31.59
Grand total or general average:												
1914	48	638	44.13	17.54	4.45	22.14	44	43.51	.....	4.86	4.17	34.48
1915	17	291	38.81	15.04	4.82	18.95	16	43.06	.....	5.36	4.51	33.19
Both years	65	929	42.75	16.88	4.55	21.32	60	43.39	.....	4.98	4.27	34.14

TABLE 22.—*The average net cost per farm of keeping breeding animals 1 year in the double-nursing group.*

State.	Number of farms.	Cows.					Bulls.					
		Number.	Gross cost.	Milk credit.	Manure credit.	Net cost.[1]	Number.	Maintenance cost.	Depreciation.	Appreciation.	Manure credit.	Net cost.
Indiana:												
1914	1	12	$44.14	$11.38	$3.88	$28.88	1	$45.53	$0.00	$0.00	$3.88	$41.65
Illinois:												
1914	2	15	53.21	19.24	5.76	28.21	1	27.02	.....	5.00	2.88	19.14
Minnesota:												
1914	2	55	37.93	12.93	3.66	21.34	2	42.52	4.90	.....	3.66	43.76
1915	1	25	36.09	16.72	3.66	15.71	1	40.89	3.33	.....	3.66	40.56
Both years	3	80	37.31	14.19	3.66	19.46	3	41.98	4.38	.....	3.66	42.70
Iowa:												
1914	1	17	46.63	18.53	5.76	22.34	1	49.58	.00	.00	5.76	43.82
1915	11	183	47.20	29.54	5.76	11.90	11	50.01	3.43	.....	5.76	47.68
Both years	12	200	47.15	28.62	5.76	12.77	12	49.98	3.14	.....	5.76	47.36
Nebraska:												
1915	1	9	43.51	27.38	4.82	11.31	1	52.86	.00	.00	4.82	48.04
Kansas:												
1915	3	65	50.43	52.69	3.35	−5.61	2	28.01	.....	3.33	2.23	22.45
Grand total or general average:												
1914	6	99	45.51	15.71	4.75	25.05	5	39.04	.....	.03	3.79	35.22
1915	16	282	46.88	32.94	5.12	8.82	15	45.49	1.94	.....	4.91	42.52
Both years	22	381	46.50	28.24	5.02	13.24	20	43.73	1.40	.....	4.60	40.53

[1] Minus quantity indicates excess of credits above costs.

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Net cost of keeping a bull in the dual-purpose group.—The average net cost of keeping a bull in the dual-purpose group (as shown in the second part of Table 19) is $37.51, or approximately $5 less than for beef bulls. This is true, even though the maintenance charge for the dual-purpose bulls was $4.66 greater than for the beef bulls. This lower net cost is largely due to the fact that much cheaper bulls are used in the dual-purpose herds, which animals usually sold for more than their purchase prices. In this group there is an average appreciation for all bulls of $2.98, which varies from a depreciation of $5.03 in Nebraska to an appreciation of $7.09 in Kansas (ignoring scattered individual farms). The manure credit averages $5.40 per bull.

Net cost of keeping a bull in the mixed group.—The average net cost of keeping a bull in the mixed group is $46.79 (see Table 20), ranging from $39.21 in Nebraska and $39.50 in South Dakota to $49.56 in Minnnesota and $50.48 in Iowa. There is an average depreciation charge of $3.43, this figure varying considerably, according to the locality in which the records were taken.

Net cost of keeping a bull in the partially-milked group.—The average net cost of maintaining a bull for the 65 farms in the partially-milked group, as shown in Table 21, is $34.14, ranging from $31.59 in Kansas (not considering one farm in Nebraska) to $38.42 in Iowa. As the majority of these bulls were grades and were mostly purchased at a low cost, there was an average appreciation of $4.98 per head. There was an appreciation in all cases, except for the farms visited in Iowa in 1915, where there was a depreciation of only 19 cents. The average manure credit was $4.27.

Net cost of keeping a bull in the double-nursing group.—The average net cost of maintaining a bull in this group (see Table 22) was $40.53, the average cost for Iowa, where the bulk of the records were taken, being $47.36. The costs in the other States were invariably lower. The average depreciation charge was $1.40. In Iowa it was $3.14. The average manure credit was $4.60.

THE CALVES.

For convenience, the discussion of the production of calves is treated under three separate headings, as follows:

(1) The average cost of raising a calf until weaning time.
(2) The average cost of producing a yearling.
(3) The cost of producing baby beef.

AVERAGE COST OF RAISING A CALF UNTIL WEANING TIME.

The same classification used in discussing the breeding herds has been retained for the calves. In the beef, baby-beef, partially-milked, and double-nursing groups all the calves are weaned in the fall, just before they go on winter feed, or when 6 to 8 months old.

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TABLE 23.—*The percentage of calves raised in the six groups, by States.*

State.	Beef.				Baby beef.				Dual purpose.				Mixed.				Partially milked.				Double nursing.			
	Number of farms.	Number of cows per farm.	Number of calves per farm.	Per cent calf crop.	Number of farms.	Number of cows per farm.	Number of calves per farm.	Per cent calf crop.	Number of farms.	Number of cows per farm.	Number of calves per farm.	Per cent calf crop.	Number of farms.	Number of cows per farm.	Number of calves per farm.	Per cent calf crop.	Number of farms.	Number of cows per farm.	Number of calves per farm.	Per cent calf crop.	Number of farms.	Number of cows per farm.	Number of calves per farm.	Per cent calf crop.
Indiana:																								
1914	6	16.5	15.3	96.2	.....	.....	.....	.....	1	8.0	8.0	100.0	.....	.....	.....	.....	15	9.6	9.3	97.9	1	12.0	12.0	100.0
Illinois:																								
1914	13	21.0	18.4	89.3	2	52.5	39.0	72.5	3	8.3	8.0	96.8	.....	.....	.....	.....	1	12.0	10.0	83.3	2	7.5	7.5	100.0
Minnesota:																								
1914	3	22.3	17.0	84.7	.....	.....	.....	.....	6	12.2	10.7	84.9	8	30.8	28.0	89.4	.....	.....	.....	.....	2	27.5	22.5	87.0
1915	9	21.4	18.9	85.0	.....	.....	.....	.....	22	16.0	13.6	82.5	9	20.1	15.3	84.6	.....	.....	.....	.....	1	25.0	20.0	80.0
Both years	12	21.7	18.4	85.0	.....	.....	.....	.....	28	15.2	13.0	83.0	17	25.1	21.3	86.8	.....	.....	.....	.....	3	26.7	21.7	84.5
Iowa:																								
1914	23	29.3	24.8	88.3	15	32.8	30.1	92.3	24	11.6	9.8	85.3	16	17.2	15.6	88.7	3	25.0	20.0	77.1	1	17.0	15.0	88.5
1915	53	31.8	27.6	85.8	30	31.0	28.3	90.4	15	12.1	11.1	84.4	24	16.0	13.8	90.9	4	19.0	16.2	86.6	11	16.6	15.4	92.5
Both years	76	31.1	26.7	86.5	45	31.6	29.1	91.1	39	11.8	10.3	85.0	40	16.4	14.5	90.0	7	21.6	17.9	82.2	12	16.7	15.3	92.2
Missouri:																								
1914	24	18.6	16.9	91.6	2	18.5	17.5	96.6	2	20.0	17.5	80.0	2	13.5	10.5	75.5	22	13.6	12.2	86.6	.....	.....	.....	.....
1915	9	31.3	26.9	86.7	2	23.0	22.0	96.2	1	10.0	10.0	100.0	2	25.0	19.5	69.4	11	16.0	14.7	92.0	.....	.....	.....	.....
Both years	33	22.1	19.6	90.2	4	20.8	19.8	96.3	3	16.7	15.0	85.7	4	19.2	15.0	72.4	33	14.4	13.0	88.3	.....	.....	.....	.....
South Dakota:																								
1914	6	30.2	25.2	86.4	.....	.....	.....	.....	4	11.0	8.8	75.6	5	48.8	41.2	86.4	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska:																								
1914	24	28.3	23.2	76.9	6	36.6	33.3	93.0	3	10.7	9.3	90.7	8	19.0	16.4	83.7	1	25.0	22.0	91.7	.....	.....	.....	.....
1915	14	24.7	20.8	82.6	3	38.0	35.0	91.2	2	6.5	5.0	76.9	3	23.0	22.7	99.3	1	7.0	7.0	100.0	1	9.0	9.0	100.0
Both years	38	27.0	22.3	78.9	9	37.1	33.8	92.4	5	9.0	7.6	84.6	11	20.1	17.7	87.4	2	16.0	14.5	95.7	.....	.....	.....	.....
Kansas:																								
1914	21	53.5	41.2	77.5	.....	.....	.....	.....	10	15.2	12.0	71.0	11	30.0	25.5	86.4	6	13.8	12.7	91.6	.....	.....	.....	.....
1915	25	47.8	40.4	85.2	6	56.0	49.7	89.5	17	11.4	10.0	91.2	14	31.3	27.1	87.6	1	32.0	28.0	87.7	3	21.7	19.0	90.1
Both years	46	50.4	40.8	81.5	.....	.....	.....	.....	27	12.8	10.8	82.5	25	30.7	26.4	87.1	7	16.4	14.9	91.1	.....	.....	.....	.....
Grand total or general average:																								
1914	120	29.52	24.28	84.6	25	34.16	30.56	90.8	53	12.32	10.34	82.2	50	25.48	22.20	86.7	48	13.30	11.98	89.9	6	16.50	14.50	93.3
1915	110	33.66	28.35	85.2	41	34.80	31.59	90.7	57	13.16	11.49	85.5	52	21.54	17.73	88.3	17	17.12	15.41	90.8	16	17.62	15.94	91.6
Both years	230	31.50	26.47	84.9	66	34.56	31.20	90.7	110	12.75	10.94	83.9	102	23.47	20.22	87.5	65	14.29	12.88	90.1	22	17.32	15.55	92.1

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The calves in the dual-purpose group and part of those in the mixed group are weaned shortly after birth and are fed on whole and skim milk for an average feeding period of approximately 4½ months. The extra feed that these calves receive after being weaned from skim milk and before going on winter feed at 6 to 8 months of age is included with the skim-milk-feeding period, in order that their cost at the time of going on winter feed may be comparable with that of the calves in the other four groups.

The greatest item of expense in producing a bunch of calves is that for maintaining the breeding herd. The proportion of this charge that each calf must bear depends on the percentage of cows producing calves, and also on the number of calves produced per bull.

The calf crop.—The best calf crop (92.1 per cent) was found in the double-nursing group (see Table 23), where there were approximately 17 cows to the farm. The next best crop (90.7 per cent) was in the baby-beef group. The calf crop ranges from 72.5 per cent for two farms in Illinois to 96.3 per cent for four farms in Missouri. The majority of the baby-beef records were obtained in Iowa, where the average calf crop was 91.1 per cent. The per cent of calves produced in the partially-milked group is 90.1, and in the mixed group, 87.5. The per cent of calves produced is low in the beef and dual-purpose groups. In the former, where the herds averaged approximately 32 cows, the calf crop if 84.9 per cent, ranging from 78.9 in Nebraska to 96.2 in Indiana, where the herds are small. Although the herds of the dual-purpose group were small, averaging only 13 cows, the percentage of calves raised until 6 to 8 months of age is lowest, being only 83.9 per cent. This is probably due to the fact that a considerable number of calves were lost while being fed on skim milk. With the exception of groups where there were less than five farms, the highest average percentage of calves (97.9 per cent) is for the 15 farms in the Indiana partially-milked group, while the lowest (71 per cent) is shown in the Kansas dual-purpose group for 1914.

Number of calves per bull.—The average number of calves produced per bull is shown in Table 24. The highest average was 25.3 in the baby-beef group, the State averages ranging from 19.5 in Kansas, where there was an average of 2.3 bulls to the farm, to 26.6 in Iowa. In the beef group there were approximately 21 calves per bull, the State averages ranging from 14.3 calves in Illinois to 29.5 calves in Kansas. In the mixed group the average is 18.5, and in the partially milked and double-nursing groups, 12.6 and 15 calves, respectively. The smallest number of calves per bull, 10.7, is found in the dual-purpose group, the State averages varying from 6 calves in Illinois to 12.5 in Minnesota.

The cost of raising a calf in the beef group.—The average farm cost of raising a beef calf until weaning time is shown in Table 25. In

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TABLE 24.—*The average number of calves produced per bull in the six groups, by States.*

State.	Beef.				Baby beef.				Dual purpose.				Mixed.				Partially milked.				Double nursing.			
	Number of farms.	Number of calves per farm.	Number of bulls per farm.	Calves per bull.	Number of farms.	Number of calves per farm.	Number of bulls per farm.	Calves per bull.	Number of farms.	Number of calves per farm.	Number of bulls per farm.	Calves per bull.	Number of farms.	Number of calves per farm.	Number of bulls per farm.	Calves per bull.	Number of farms.	Number of calves per farm.	Number of bulls per farm.	Calves per bull.	Number of farms.	Number of calves per farm.	Number of bulls per farm.	Calves per bull.
Indiana:																								
1914	6	15.3	1.00	15.3	.....	.....	.....	.....	1	8.0	1.00	8.0	.....	.....	.....	.....	15	9.3	0.83	8.6	1	12.0	1.00	12.0
Illinois:																								
1914	13	18.4	.92	14.3	2	39.0	1.50	23.0	3	8.0	.67	6.0	.....	.....	.....	.....	1	10.0	1.00	10.0	2	7.5	.50	5.0
Minnesota:																								
1914	3	17.0	.67	12.0	.....	.....	.....	.....	6	10.7	.83	8.0	8	28.0	0.88	19.9	.....	.....	.....	.....	2	22.5	1.00	22.5
1915	9	18.9	1.00	18.9	.....	.....	.....	.....	22	13.6	1.00	13.6	9	15.3	.89	17.7	.....	.....	.....	.....	1	20.0	1.00	20.0
Both years	12	18.4	.92	17.2	.....	.....	.....	.....	28	13.0	.96	12.5	17	21.3	.89	18.8	.....	.....	.....	.....	3	21.7	1.00	21.7
Iowa:																								
1914	23	24.8	1.04	22.2	15	30.1	1.07	28.9	24	9.8	.95	10.7	16	15.6	1.00	15.6	3	20.0	1.00	20.0	1	15.0	1.00	15.0
1915	53	27.6	1.18	20.3	30	28.3	1.07	25.5	15	11.1	.93	9.9	24	13.8	.90	14.0	4	16.2	1.00	16.2	11	15.4	1.00	15.4
Both years	76	26.7	1.14	20.9	45	29.1	1.07	26.6	39	10.3	.94	10.4	40	14.5	.94	14.6	7	17.9	1.00	17.9	12	15.3	1.00	15.3
Missouri:																								
1914	24	16.9	.98	14.1	2	17.5	1.00	17.5	2	17.5	1.50	11.2	2	10.5	1.00	10.5	22	12.2	.95	12.2	.....	.....	.....	.....
1915	9	26.9	1.22	22.2	2	22.0	1.00	22.0	1	10.0	1.00	10.0	2	19.5	1.50	12.8	11	14.7	1.00	14.7	.....	.....	.....	.....
Both years	33	19.6	1.05	16.3	4	19.8	1.00	19.8	3	15.0	1.33	10.8	4	15.0	1.25	11.6	33	13.0	.97	13.0	.....	.....	.....	.....
South Dakota:																								
1914	6	25.2	1.00	25.2	.....	.....	.....	.....	4	8.8	1.00	8.8	5	41.2	1.40	17.2	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska:																								
1914	24	23.2	1.17	19.8	6	33.3	1.33	23.6	3	9.3	1.00	9.3	8	16.4	.87	15.4	1	22.0	1.00	22.0	.....	.....	.....	.....
1915	14	20.8	1.14	15.7	3	35.0	1.33	28.2	2	5.0	1.00	5.0	3	22.7	1.00	22.7	1	7.0	.....	.....	1	9.0	1.00	9.0
Both years	38	22.3	1.16	18.3	9	33.8	1.33	25.1	5	7.6	1.00	7.6	11	17.7	.91	17.4	2	14.5	.50	11.0	.....	.....	.....	.....
Kansas:																								
1914	21	41.2	1.31	32.4	.....	.....	.....	.....	10	12.0	.85	12.1	11	25.5	1.05	24.8	6	12.7	1.00	12.7	.....	.....	.....	.....
1915	25	40.4	1.12	27.0	6	49.7	2.30	19.5	17	10.0	.88	9.7	14	27.1	1.07	27.7	1	28.0	1.00	28.0	3	19.0	.67	17.3
Both years	46	40.8	1.21	29.5	.....	.....	.....	.....	27	10.8	.87	10.6	25	26.4	1.06	26.4	7	14.9	1.00	14.9	.....	.....	.....	.....
Grand total or general average:																								
1914	120	24.28	1.07	20.6	25	30.56	1.16	26.2	53	10.34	.93	10.1	50	22.20	1.01	18.2	48	11.98	.92	11.8	6	14.50	.83	13.5
1915	110	28.85	1.15	21.3	41	31.59	1.27	24.7	57	11.49	.95	11.1	52	17.73	.97	18.8	17	15.41	.94	15.0	16	15.94	.94	15.6
Both years	230	26.47	1.11	20.9	66	31.20	1.23	25.3	110	10.94	.94	10.7	102	20.22	.99	18.5	65	12.88	.92	12.6	22	15.55	.91	15.0

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this group there are two principal items of expense, the cow charge and the bull charge. With the exception of a charge of 1 cent per calf for extra feed, these two figures make the total cost of keeping a beef calf up to weaning time, as all other expenses are debited against the cows until the calves are weaned. Where a calf was vaccinated for blackleg previous to weaning, this charge was carried over and figured in with the cost of producing yearlings. The small charge for feed in this group is due to one farmer in Missouri feeding his calves 2½ pounds of extra grain per head per day for a period of two months previous to weaning them in the fall. This made an additional feed bill of $1.61 for each of the 30 calves on this farm which, averaged against all of the 1915 Missouri calves, made a feed charge of 18 cents, or 1 cent for each of the calves in the group.

The cow charge per calf is determined by multiplying the net cost of keeping a cow on each individual farm for one year by the number of cows per calf on that farm. The averages of these figures for the 230 farms in the beef group are shown in the fifth column of Table 25. The average cow charge is $35.47, and ranges from $26.21 in South Dakota to $38.73 in Kansas.

The bull charge per calf is obtained by dividing the net cost of keeping a bull for one year on each of these farms by the number of calves per bull on that farm. The average bull charge so obtained is $2.26, ranging from $1.80 in South Dakota, where there were 29.5 calves per bull, to $3.75 in Indiana, where there were only 15.3 calves per bull. The average cost of a beef calf at weaning time (6 to 8 months) is $37.74, varying from $28.01 in South Dakota to $40.54 in Kansas.

Cost of raising a calf in the baby-beef group.—The average cost of raising a baby-beef calf until weaning time, as shown in Table 26, is $36.79, or practically $1 less than for a calf in the beef group. The cow charges per calf average $34.50, ranging from $31.95 in Nebraska to $38.16 in Kansas. This is 97 cents less than the cow charge for the calves in the beef group, although the net cost of maintenance for the cows in the baby-beef group is greater than that for the cows in the beef group. This difference is because of the larger percentage of calves raised in the baby-beef group, this better yield probably being due to the fact that the cows were better fed and better cared for.

The average bull charge is $2.29 per calf, which is practically the same as for the beef group, although there is a difference of $10 in the net cost of the bulls in the two groups. The bulls in the baby-beef group, while costing considerably more for their keep, were in larger herds and obtained on an average 4½ more calves per year than the bulls in the beef group, this larger yield offsetting the greater cost. The cow charge and bull charge constitute the total cost of carrying a baby-beef calf until weaning time.

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TABLE 25.—*The various charges that constitute the average farm cost of raising a calf up to weaning time (6 to 8 months) in the beef group.*

State.	Number of farms.	Number of calves.	Net cost per cow.	Cows per calf.	Cow charge per calf.	Net cost per bull.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
Indiana:											
1914.....	6	92	$34.41	1.040	$35.60	$42.98	15.3	$3.75	$0.00	$0.00	$39.35
Illinois:											
1914.....	13	221	33.98	1.120	37.80	31.62	14.3	2.25	.00	.00	40.05
Minnesota:											
1914.....	3	51	28.95	1.180	33.85	24.10	12.0	1.64	.00	.00	35.49
1915.....	9	170	30.56	1.176	34.80	41.53	18.9	2.28	.00	.00	37.08
Both years.	12	221	30.16	1.177	34.57	37.17	17.2	2.12	.00	.00	36.69
Iowa:											
1914.....	23	571	31.19	1.132	34.64	53.44	22.2	2.37	.00	.00	37.01
1915.....	53	1,477	31.61	1.166	36.61	49.08	20.3	2.46	.00	.00	39.07
Both years.	76	2,048	31.49	1.156	36.01	50.40	20.9	2.43	.00	.00	38.44
Missouri:											
1914.....	24	406	30.24	1.092	32.98	34.38	14.1	2.68	.00	.00	35.66
1915.....	9	242	26.36	1.153	30.42	32.02	22.2	1.47	.18	.00	32.07
Both years.	33	648	29.18	1.108	32.28	33.73	16.3	2.35	.05	.00	34.68
South Dakota:											
1914.....	6	154	22.96	1.158	26.21	38.70	25.2	1.80	.00	.00	28.01
Nebraska:											
1914.....	24	556	27.71	1.300	36.48	41.85	19.8	2.58	.00	.00	39.06
1915.....	14	297	25.13	1.210	30.21	25.28	15.7	1.80	.00	.00	32.01
Both years.	38	853	26.76	1.267	34.17	35.75	18.3	2.29	.00	.00	36.46
Kansas:											
1914.....	21	867	33.52	1.290	42.99	42.33	32.4	1.51	.00	.00	44.50
1915.....	25	1,009	30.06	1.174	35.16	47.33	27.0	2.05	.00	.00	37.21
Both years.	46	1,876	31.64	1.227	38.73	45.05	29.5	1.81	.00	.00	40.54
Grand total or general average:											
1914.....	120	2,918	30.71	1.182	36.09	41.01	20.6	2.33	.00	.00	38.42
1915.....	110	3,195	29.92	1.174	34.81	43.64	21.3	2.19	.01	.00	37.01
Both years.	230	6,113	30.33	1.178	35.47	42.27	20.9	2.26	.01	.00	37.74

TABLE 26.—*The various charges that constitute the average farm cost of raising a calf up to weaning time (6 to 8 months) in the baby-beef group.*

State.	Number of farms.	Number of calves.	Net cost per cow.	Cows per calf.	Cow charge per calf.	Net cost per bull.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
Illinois:											
1914.....	2	78	$25.01	1.380	$34.65	$56.12	23.0	$2.42	$0.00	$0.00	$37.07
Iowa:											
1914.....	15	458	32.79	1.083	35.28	58.66	28.9	2.24	.00	.00	37.52
1915.....	30	855	30.97	1.106	34.17	54.23	25.5	2.24	.00	.00	36.41
Both years	45	1,313	31.58	1.098	34.53	55.71	26.6	2.24	.00	.00	36.77
Missouri:											
1914.....	2	35	35.41	1.035	36.51	33.26	17.5	2.78	.00	.00	39.29
1915.....	2	44	30.98	1.040	31.98	54.08	22.0	2.43	.00	.00	34.41
Both years	4	79	33.19	1.038	34.25	43.67	19.8	2.60	.00	.00	36.85
Nebraska:											
1914.....	6	199	33.32	1.075	35.46	58.09	23.6	2.55	.00	.00	38.01
1915.....	3	105	22.88	1.097	24.95	44.25	28.2	2.13	.00	.00	27.08
Both years	9	304	29.85	1.082	31.95	53.48	25.1	2.41	.00	.00	34.36
Kansas:											
1915.....	6	298	33.13	1.117	38.16	40.04	19.5	2.19	.00	.00	40.35
Grand total or general average:											
1914.....	25	770	32.51	1.101	35.37	56.29	26.2	2.37	.00	.00	37.74
1915.....	41	1,302	30.69	1.103	33.97	51.42	24.7	2.24	.00	.00	36.21
Both years	66	2,072	31.38	1.102	34.50	53.26	25.3	2.29	.00	.00	36.79

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Cost of raising a calf in the dual-purpose group.—The average cow charge per calf in the dual-purpose group (see Table 27) is $7.34, this charge being $15.57 for 1914, whereas for 1915 there is a small credit of 29 cents to each calf. The bull charge averages $4.02, this cost (not considering one farm in Indiana) ranging from $2.77 in Illinois to $6.09 in Nebraska.

The calves in this group were weaned shortly after birth and were raised on whole milk, skim milk, pasturage, and some extra grain. They also frequently received additional roughage, especially toward the latter part of the season, just before going on winter feed. The average feed charge for these calves is $9.35, this item varying from $5.38 in South Dakota to $11.10 in Nebraska. The labor charge in caring for these skim-milk calves averages $2.56. The average cost of raising a dual-purpose calf until weaned of skim milk and put on winter feed is $23.27, this charge being $30.97 for 1914, as against $16.13 for 1915.

Cost of raising a calf in the mixed group.—The average cow charge per calf in the mixed group is $22.29 (see Table 28), ranging from $18.63 in South Dakota to $35.89 in Missouri. The bull charge averages $2.91, this item varying from $1.84 in Kansas to $3.94 in Missouri. The feed cost averages $4.48 per calf, varying from $2.04 in South Dakota to $6.68 in Missouri. In obtaining this figure, the total cost of feed consumed by the hand-raised calves was determined, and this amount was prorated against all of the calves in the group. The labor item, which is for the skim-milk calves only, has also been prorated against all of the calves. This amounts to $1.11 per head, the averages for the different States being very nearly the same.

The average total cost of producing a calf in this group is $30.79, this figure varying from $23.63 in South Dakota to $47.74 in Missouri.

Cost of raising a calf in the partially-milked group.—The average cost of raising a calf on each of the 65 farms in the partially-milked group (as shown in Table 29) is $27.08, ranging from $17.76 in Nebraska (not considering one farm in Illinois) to $30.54 in Indiana in 1914. The cow charge is $23.71, while the bull charge averages $3.35. Ordinarily there is no feed or labor charge to be made against calves in this group. However, on one farm in Iowa the calves were kept up and allowed to nurse their dams twice daily, and in addition received extra grain for a period of 5½ months. This charge, when averaged among all the calves, amounts to 2 cents a head.

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TABLE 27.—*The various charges that constitute the average farm cost of raising a calf up to weaning time (6 to 8 months) in the dual-purpose group.*

State.	Number of farms.	Number of calves.	Net cost per cow.[1]	Cows per calf.	Cow charge per calf.[1]	Net cost per bull.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
Indiana:											
1914	1	8	$13.68	1.000	$13.68	$16.96	8.0	$2.12	$8.64	$3.38	$27.82
Illinois:											
1914	3	24	24.22	1.033	24.90	20.80	6.0	2.77	7.78	2.59	38.04
Minnesota:											
1914	6	66	12.99	1.178	17.87	43.36	8.0	4.95	8.83	2.80	34.45
1915	22	299	3.61	1.212	2.76	32.86	13.7	2.57	10.36	1.80	17.49
Both years	28	365	5.62	1.205	6.00	35.11	12.5	3.08	10.03	2.01	21.12
Iowa:											
1914	24	219	10.80	1.172	13.36	46.54	10.7	5.24	7.85	3.01	29.46
1915	15	173	− 2.85	1.185	− 3.10	43.85	9.9	4.63	12.49	2.10	16.12
Both years	39	392	5.55	1.177	7.03	45.51	10.4	5.00	9.64	2.66	24.33
Missouri:											
1914	2	35	21.73	1.250	28.15	55.45	11.2	5.40	7.69	1.89	43.13
1915	1	10	− 7.47	1.000	− 7.47	9.05	10.0	.90	13.03	1.35	7.81
Both years	3	45	11.99	1.167	16.27	39.98	10.8	3.90	9.47	1.71	31.35
South Dakota:											
1914	4	35	2.46	1.322	4.55	40.30	9.8	5.42	5.38	3.64	18.99
Nebraska:											
1914	3	28	6.36	1.103	7.52	40.43	9.3	4.84	10.75	2.49	25.60
1915	2	10	−17.14	1.300	−22.10	39.86	5.0	7.97	11.62	3.07	.56
Both years	5	38	− 3.04	1.182	− 4.33	40.20	7.6	6.09	11.10	2.72	15.58
Kansas:											
1914	10	120	14.14	1.407	21.12	29.38	12.1	2.56	8.15	2.78	34.61
1915	17	158	2.08	1.007	1.23	30.14	9.7	3.59	9.00	2.87	16.69
Both years	27	278	6.54	1.212	8.60	29.87	10.6	3.21	8.60	2.84	23.25
Grand total or general average:											
1914	53	535	12.02	1.216	15.57	40.45	10.1	4.50	8.00	2.90	30.97
1915	57	650	.53	1.170	− .29	34.77	11.1	3.58	10.60	2.24	16.13
Both years	110	1,185	6.07	1.192	7.34	37.51	10.7	4.02	9.35	2.56	23.27

[1] Minus quantities indicate excess of credits above costs.

TABLE 28.—*The various charges that constitute the average farm cost of raising a calf up to weaning time (6 to 8 months) in the mixed group.*

State.	Number of farms.	Number of calves.	Net cost per cow.	Cows per calf.	Cow charge per calf.	Net cost per bull.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
Minnesota:											
1914	8	224	$21.82	1.119	$25.05	$51.41	19.9	$2.42	$2.08	$0.68	$30.23
1915	9	138	13.29	1.182	17.22	47.91	17.7	3.17	5.76	1.20	27.15
Both years	17	362	17.31	1.152	20.90	49.56	18.8	2.81	3.92	.96	28.59
Iowa:											
1914	16	248	24.05	1.127	26.46	63.69	15.6	4.89	4.31	1.43	37.09
1915	24	341	14.80	1.100	16.15	41.68	14.0	3.00	6.70	1.26	27.11
Both years	40	589	18.50	1.111	20.28	50.48	14.6	3.75	5.74	1.33	31.10
Missouri:											
1914	2	21	22.09	1.325	31.12	34.18	10.5	3.64	5.24	1.42	41.42
1915	2	39	28.17	1.440	40.66	53.18	12.8	4.23	8.14	1.03	54.06
Both years	4	60	25.13	1.382	35.89	43.68	11.6	3.94	6.68	1.23	47.74
South Dakota:											
1914	5	206	15.92	1.158	18.63	39.50	17.2	2.08	2.04	.88	23.63
Nebraska:											
1914	8	131	25.76	1.195	31.52	41.84	15.4	2.63	2.60	1.65	38.40
1915	3	64	12.33	1.007	12.16	32.23	22.7	1.65	4.24	.55	18.60
Both years	11	195	22.10	1.144	26.24	39.21	17.4	2.36	3.05	1.35	33.00
Kansas:											
1914	11	283	22.50	1.157	26.51	41.64	24.8	1.89	3.41	.87	32.68
1915	14	379	18.31	1.142	20.74	46.42	27.7	1.81	3.77	.70	27.02
Both years	25	662	20.15	1.148	23.23	44.32	26.4	1.84	3.61	.78	29.51
Grand total or general average:											
1914	50	1,113	22.73	1.154	26.46	49.78	18.2	3.14	3.29	1.17	34.06
1915	52	961	15.85	1.133	18.28	43.93	18.8	2.68	5.63	1.05	27.64
Both years	102	2,074	19.23	1.143	22.29	46.79	18.5	2.91	4.48	1.11	30.79

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TABLE 29.—*The various charges that constitute the average farm cost of raising a calf up to weaning time (6 to 8 months) in the partially-milked group.*

State.	Number of farms.	Number of calves.	Net cost per cow.	Cows per calf.	Cow charge per calf.	Net cost per bull.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
Indiana:											
1914	15	139	$25.32	1.021	$25.97	$33.98	8.6	$4.57	$0.00	$0.00	$30.54
Illinois:											
1914	1	10	7.95	1.200	9.54	35.10	10.0	3.51	.00	.00	13.05
Iowa:											
1914	3	60	15.81	1.297	20.65	35.45	20.0	2.69	.00	.00	23.34
1915	4	65	19.23	1.155	22.22	40.65	16.2	2.64	.31	.00	25.17
Both years	7	125	17.76	1.216	21.55	38.42	17.9	2.66	.17	.00	24.38
Missouri:											
1914	22	276	23.22	1.155	27.00	35.20	12.2	3.46	.00	.00	30.46
1915	11	162	19.71	1.087	21.77	33.42	14.7	2.77	.00	.00	24.54
Both years	33	438	22.05	1.132	25.26	34.61	13.0	3.23	.00	.00	28.49
Nebraska:											
1914	1	22	27.97	1.090	30.49	42.27	22.0	1.92	.00	.00	32.41
1915	1	10	2.80	1.000	2.80	.00	.0	.30	.00	.00	3.10
Both years	2	32	15.39	1.045	16.65	21.14	11.0	1.11	.00	.00	17.76
Kansas:											
1914	6	76	14.83	1.092	15.81	31.21	12.7	2.91	.00	.00	18.72
1915	1	28	25.75	1.140	29.36	33.91	28.0	1.21	.00	.00	30.57
Both years	7	104	16.39	1.098	17.74	31.59	14.9	2.63	.00	.00	20.37
Grand total or general average:											
1914	48	583	22.14	1.113	24.59	34.48	11.8	3.66	.00	.00	28.25
1915	17	265	18.95	1.101	21.21	33.19	15.0	2.48	.07	.00	23.76
Both years	65	848	21.32	1.110	23.71	34.14	12.6	3.35	.02	.00	27.08

TABLE 30.—*The various charges that constitute the average farm cost of raising a calf up to weaning time (6 to 8 months) in the double-nursing group.*

State.	Number of farms.	Number of calves.	Net cost per cow.	Cows per calf.	Cow charge per calf.	Net cost per bull.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
Indiana:											
1914	1	12	$28.88	1.000	$28.88	$41.65	12.0	$3.47	$0.00	$0.00	$32.35
Illinois:											
1914	2	15	28.21	1.000	28.21	19.14	5.0	1.92	.00	.00	30.13
Minnesota:											
1914	2	45	21.34	1.150	25.08	43.76	22.5	1.88	.00	.00	26.96
1915	1	20	15.71	1.250	19.64	40.56	20.0	2.03	.00	.00	21.67
Both years	3	65	19.46	1.183	23.27	42.70	21.7	1.93	.00	.00	25.20
Iowa:											
1914	1	15	22.34	1.130	25.24	43.82	15.0	2.92	.00	.00	28.16
1915	11	165	11.90	1.081	13.58	47.68	15.4	3.71	.16	.02	17.47
Both years	12	180	12.77	1.085	14.56	47.36	15.3	3.64	.14	.02	18.36
Nebraska:											
1915	1	9	11.31	1.000	11.31	48.04	9.0	5.34	.00	.00	16.65
Kansas:											
1915	3	47	[1] −5.61	1.110	[1] −7.16	22.45	17.3	1.45	1.31	.00	[1] −4.40
Grand total or general average:											
1914	6	87	25.05	1.072	26.78	35.22	13.5	2.33	.00	.00	29.11
1915	16	241	8.82	1.092	9.93	42.52	15.6	2.28	.35	.02	13.58
Both years	22	328	13.24	1.086	14.53	40.53	15.0	3.02	.26	.01	17.82

[1] Minus quantities indicate excess of credits above costs.

Cost of raising a calf in the double-nursing group.—Table 30 shows that the average cost of a calf at weaning time in the double-nursing group is $17.82, the cost in 1914 being $29.11, and in 1915, $13.58. It should be noted that in this group but few records (six) were obtained in the unfavorable year of 1914, while 16 were taken in the more favorable year of 1915. The cow charge per calf averages

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$14.53, and the bull charge, $3.02. In this group, two farms were found where the calves received extra grain, additional labor also being included on one of these farms. The extra feed, when averaged against all of the calves, amounts to 26 cents, while the extra labor is 1 cent. The cows on three farms in Kansas in 1915 gave their calves an average credit of $7.16 each, after all their expenses were deducted. As this credit was greater than the combined charges for the bull and additional feed for the calf, the calves still had a credit of $4.40 each at weaning time. In other words, on these three farms the calves were produced at no cost whatever to the farmer, while there was a credit of $4.40 still remaining because of the extra milk produced by the cows.

A COMPARISON OF GROUPS.

In Table 31 the cost of raising a calf to from 6 to 8 months of age, or to weaning time, is shown by groups. The beef and the baby-beef calves are the most expensive, costing $37.74 and $36.79, respectively. The calves in the double-nursing group are the cheapest, costing but $17.82. The costs for the remainder are as follows: Mixed, $30.79; partially milked, $27.08; dual purpose, $23.27.

The cow charge is the heaviest item of expense, amounting to $35.47 per calf in the beef group and $34.50 in the baby-beef group, and forming approximately 94 per cent of the total cost. In the mixed and partially-milked groups the cow charge is $22.29 and $23.71, respectively, these charges forming from 72.4 to 87.6 per cent, respectively, of the total cost. This charge drops to $14.53 in the double-nursing group and to $7.34 in the dual-purpose group. In the dual-purpose group the cow charge makes approximately one-third of the total cost.

The bull charge makes from 6 per cent of the total cost, in the beef and baby-beef groups, to approximately 17 per cent in the dual-purpose and double-nursing groups. In the beef group, where there is an average of 22.4 calves to share the expense, this charge is lowest, amounting to $2.26. In the baby-beef group, where there are 25.3 calves per bull, the charge is a little larger than that for the preceding group, being $2.29. In this particular group the higher charge is due to the better quality of the breeding animals, which also received better care. In the dual-purpose group, where there are only 10.7 calves per bull, this charge is $4.02. In the remaining groups, where the number of calves per bull is rather low, the costs are considerably higher than in the beef and baby-beef groups, ranging from $2.91 in the mixed to $3.35 in the partially-milked groups.

In the beef group, on 46 farms in Kansas where an average of 30 calves were produced by each bull, the bull charge amounts to $1.81.

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On 39 dual-purpose farms in Iowa, where there were only 10 calves per bull, this charge averages $5.00, in spite of the fact that cheaper bulls were used. On these same farms the feed cost for calves raised on skim milk amounts to $9.64, while the labor charge is $2.66. In the mixed group, where only 37 per cent of the cows were milked and their calves raised on skim milk, the charges are approximately half as large. In the beef, partially-milked, and double-nursing groups there is a slight charge for extra feed given the calves before weaning time.

The figures indicate that the bull charge is an important item of expense in small herds. The records show that farmers realize this, for many make a practice of buying calves or yearling bulls, which are kept one or two years and then sold, at an advance, to breeders having larger herds. A number of instances were found where two farmers used the same bull, thus virtually cutting the bull charge in half. By following either of these practices it is possible either to decrease the bull charge or to have the use of a bull of high quality at approximately the same cost as is found on those farms where poor bulls are kept.

TABLE 31.—*A comparison of the different items of cost in raising a calf to weaning time (6 to 8 months) in the six groups.*

Group.	Number of farms.	Average number calves per farm.	Cost per calf.				
			Cow charge.	Bull charge.	Feed.	Labor.	Total.
Beef:							
1914	120	24.28	$36.09	$2.33	$0.00	$0.00	$38.42
1915	110	28.85	34.81	2.19	.01	.00	37.01
Both years	230	26.47	35.47	2.26	.01	.00	37.74
Baby beef:							
1914	25	30.56	35.37	2.37	.00	.00	37.74
1915	41	31.59	33.97	2.24	.00	.00	36.21
Both years	66	31.20	34.50	2.29	.00	.00	36.79
Dual purpose:							
1914	53	10.34	15.57	4.50	8.00	2.90	30.97
1915	57	11.49	[1] —.29	3.58	10.60	2.24	16.13
Both years	110	10.94	7.34	4.02	9.35	2.56	23.27
Mixed:							
1914	50	22.20	26.46	3.14	3.29	1.17	34.06
1915	52	17.73	18.28	2.68	5.63	1.05	27.64
Both years	102	20.22	22.29	2.91	4.48	1.11	30.79
Partially milked:							
1914	48	11.98	24.59	3.66	.00	.00	28.25
1915	17	15.41	21.21	2.48	.07	.00	23.76
Both years	65	12.88	23.71	3.35	.02	.00	27.08
Double nursing:							
1914	6	14.50	26.78	2.33	.00	.00	29.11
1915	16	15.94	9.93	3.28	.35	.02	13.58
Both years	22	15.55	14.53	3.02	.26	.01	17.82

[1] Minus quantity indicates excess of credits above costs.

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COST OF PRODUCING A YEARLING.

In this study the calves are taken at weaning time, which is usually in November or early December, and are carried until the opening of the pasture season the following spring, which is approximately May 1, at which time they average about 13 months old. While the groups, excepting the omission of the baby-beef group, are unchanged, there is a considerable change in the number of animals involved in the discussion. Many of the calves were sold at weaning time, to be fed out as baby beef or to be carried through and fed out as 2-year-olds. Thus data on the cost of producing yearlings were procured from but 531 farms, the calves from 65 of the 596 farms having been sold at weaning time. As a result of this change in the number of farms, the figures representing the cost of a calf at weaning time in the tables that follow are, of necessity, slightly different from those previously given.

Tables 32 to 36, inclusive, show the various items of expense that go to make up the gross cost of producing a yearling in each of the groups, baby beef being excepted. They also show the net cost after the manure credit has been deducted. The various items of expense are: "Cost at weaning time," "Cost of winter feed," "Labor," "Equipment," "Interest," "Risk," and "Other charges." Under the heading "Other charges," the items of taxes, insurance, and veterinary expense, being very small, are combined.

The winter feeding period is approximately six months. At the beginning of this period the calves in the beef group average from 425 to 450 pounds in weight, while those in the dual-purpose group average from 300 to 350 pounds. The average gain in weight during the period is approximately 50 pounds. The feed costs have been worked up in the same general manner as for the breeding herd. The item of labor, which is the cost of caring for the calves while on winter feed, is figured in the same manner as for the cows. The equipment charges were figured on the animal unit basis, as previously explained under the "Breeding herd," each calf being considered as one-third of an animal unit. The interest charge is based on the average of the first and second inventory values of the animal. The cost of the calf at weaning time is used as the first inventory value. The second inventory value is obtained by adding to the cost of the calf at weaning time the cost of feed and labor. Equipment and minor charges were not included, as interest has already been figured on these items. The item of risk was determined in the same manner as for the cows and bulls (being figured for the winter feeding period). This charge amounted to 32 cents a head, there being a loss of approximately 1 per cent. A considerable number of the calves lost died of blackleg. As previously stated, the items of insurance, taxes, and veterinary charges were very small. The veterinary charges were largely for vaccination against blackleg, these charges usually running

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from 12½ to 25 cents per calf. The manure credit allowed was one-third that for cows and bulls, figured on the basis of the 1914 records, which indicates that a cow or bull consumes approximately three times as much feed as a calf.

TABLE 32.—*The cost of producing a yearling, based on the averages of 190 farms in the beef group.*

State.	Number of farms.	Number of calves.	Average cost per yearling.								
			Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Risk.	Other charges.	Gross cost.	Manure credit.	Net cost.
Indiana:												
1914	3	32	$39.98	$10.65	$2.01	$0.89	$1.38	$0.32	$0.00	$55.23	$1.36	$53.87
Illinois:												
1914	11	155	41.17	12.73	2.21	.97	1.46	.32	.00	58.86	1.97	56.89
Minnesota:												
1914	2	27	37.98	10.95	3.62	.41	1.36	.32	.00	54.64	1.25	53.39
1915	9	195	37.08	9.95	2.10	.93	1.29	.32	.02	51.69	1.25	50.44
Both years	11	222	37.24	10.13	2.38	.83	1.31	.32	.02	52.23	1.25	50.98
Iowa:												
1914	20	399	38.10	14.98	1.97	.92	1.37	.32	.01	57.67	1.97	55.70
1915	46	1,087	39.02	14.28	2.11	.90	1.42	.32	.04	58.09	1.97	56.12
Both years	66	1,486	38.75	14.49	2.06	.91	1.41	.32	.03	57.97	1.97	56.00
Missouri:												
1914	19	241	36.88	11.20	2.97	.50	1.32	.32	.00	53.19	1.36	51.83
1915	7	183	32.98	8.50	2.66	.79	1.16	.32	.08	46.49	1.36	45.13
Both years	26	424	35.84	10.47	2.89	.58	1.27	.32	.02	51.39	1.36	50.03
South Dakota:												
1914	5	138	29.95	8.04	1.61	.19	1.04	.32	.00	41.15	1.25	39.90
Nebraska:												
1914	19	478	40.31	14.08	1.69	.54	1.45	.32	.15	58.54	1.65	56.89
1915	12	319	31.82	11.71	1.54	.52	1.15	.32	.18	47.24	1.65	45.59
Both years	31	797	37.02	13.16	1.64	.53	1.33	.32	.16	54.16	1.65	52.51
Kansas:												
1914	12	450	46.58	11.68	2.28	.23	1.61	.32	.02	62.72	1.14	61.58
1915	25	937	37.21	9.59	2.50	.45	1.30	.32	.21	51.58	1.14	50.44
Both years	37	1,387	40.25	10.26	2.43	.38	1.40	.32	.16	55.20	1.14	54.06
Grand total or general average:												
1914	91	1,920	39.41	12.68	2.21	.62	1.40	.32	.03	56.67	1.59	55.08
1915	99	2,721	37.09	11.98	2.18	.73	1.33	.32	.10	53.73	1.61	52.12
Both years	190	4,641	38.20	12.32	2.19	.68	1.36	.32	.07	55.14	1.60	53.54

Cost of producing a yearling in the beef group.—The average gross cost of producing a yearling in the beef group (shown in Table 32), as obtained from 190 farms, was $55.14, this cost ranging from $41.15 in South Dakota to $57.97 in Iowa and $58.86 in Illinois.[1]

The average feed cost was $12.32, varying from $8.04 in South Dakota to $14.49 in Iowa. The labor item averaged $2.19. The equipment charge ranged from 19 cents in South Dakota to 91 cents in Iowa and 97 cents in Illinois, with an average of 68 cents. The interest charge averaged $1.36, varying from $1.04 in South Dakota to $1.46 in Illinois. The average manure credit was $1.60, making the average net cost of the yearlings in this group $53.54. The average weight of the yearlings ranged from 475 to 500 pounds.

Cost of producing a yearling in the dual-purpose group.—The average gross cost of producing a yearling in the dual-purpose group (as

[1] As the calves from 40 farms have been dropped from the records at this point, the average cost at weaning time of those left becomes 46 cents greater than the figure shown in Table 25. There are small fluctuations in this cost in each State, with changes in the number of farms. Some of these costs are greater than those shown in Table 25, while others are less. It might be noted that while the calves were sold from 29 farms visited in 1914, they were only sold from 11 of the 1915 farms.

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TABLE 33.—*The cost of producing a yearling, based on the averages of 99 farms in the dual-purpose group.*

State.	Number of farms.	Number of calves.	Average cost per yearling.									
			Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Risk.	Other charges.	Gross cost.	Manure credit.	Net cost.
Indiana:												
1914	1	8	$27.82	$12.32	$3.38	$0.94	$1.07	$0.32	$0.25	$46.10	$1.69	$44.41
Illinois:												
1914	2	16	30.43	8.48	2.47	.84	1.08	.32	.00	43.62	2.46	41.16
Minnesota:												
1914	6	66	34.45	6.17	2.07	1.88	1.16	.32	.00	46.05	1.56	44.49
1915	22	291	17.49	8.20	2.33	1.05	.70	.32	.01	30.10	1.56	28.54
Both years	28	357	21.12	7.76	2.28	1.22	.80	.32	.01	33.51	1.56	31.95
Iowa:												
1914	22	215	28.42	12.36	2.83	1.28	1.08	.32	.01	46.30	2.46	43.84
1915	13	137	22.30	11.89	1.92	1.37	.87	.32	.01	38.68	2.46	36.22
Both years	35	352	26.15	12.18	2.49	1.31	1.01	.32	.01	43.47	2.46	41.01
Missouri:												
1914	1	25	28.14	11.16	2.16	.95	1.04	.32	.00	43.77	1.69	42.08
1915	1	10	22.50	10.33	1.62	1.59	.85	.32	.01	37.22	1.69	35.53
Both years	2	35	25.32	10.74	1.89	1.27	.95	.32	.....	40.49	1.69	38.80
South Dakota:												
1914	4	32	18.99	7.59	2.14	.62	.72	.32	.05	30.43	1.56	28.87
Nebraska:												
1914	3	28	25.60	5.81	2.49	1.34	.88	.32	.00	36.44	2.05	34.39
1915	2	10	.56	15.25	3.48	.68	.30	.32	.16	20.75	2.05	18.70
Both years	5	38	15.58	9.59	2.89	1.08	.64	.32	.06	30.16	2.05	28.11
Kansas:												
1914	8	94	35.08	8.22	2.33	.96	1.21	.32	.03	48.15	1.42	46.73
1915	14	126	18.56	10.33	3.09	.99	.76	.32	.15	34.20	1.42	32.78
Both years	22	220	24.56	9.56	2.82	.98	.92	.32	.11	39.27	1.42	37.85
Grand total or general average:												
1914	47	484	29.41	9.85	2.55	1.21	1.07	.32	.02	44.43	2.03	42.40
1915	52	574	18.43	10.00	2.47	1.11	.75	.32	.05	33.13	1.77	31.36
Both years	99	1,058	23.64	9.93	2.50	1.16	.90	.32	.04	38.49	1.89	36.60

TABLE 34.—*The cost of producing a yearling, based on the averages of 96 farms in the mixed group.*

State.	Number of farms.	Number of calves.	Average cost per yearling.									
			Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Risk.	Other charges.	Gross cost.	Manure credit.	Net cost.
Minnesota:												
1914	8	151	$30.23	$10.81	$3.08	$0.91	$1.11	$0.32	$0.00	$46.46	$1.19	$45.27
1915	9	189	27.15	10.32	1.98	.75	.98	.32	0.01	41.51	1.19	40.32
Both years	17	340	28.59	10.55	2.49	.83	1.04	.32	.01	43.83	1.19	42.64
Iowa:												
1914	15	224	36.03	14.72	2.81	1.21	1.34	.32	.00	56.43	1.87	54.56
1915	24	382	27.11	12.67	2.34	1.04	1.03	.32	.02	44.53	1.87	42.66
Both years	39	606	30.55	13.45	2.52	1.10	1.15	.32	.01	49.10	1.87	47.23
Missouri:												
1915	2	34	54.06	7.58	3.60	.81	1.79	.32	.03	68.19	1.29	66.90
South Dakota:												
1914	5	206	23.63	10.58	1.33	.43	.89	.32	.00	37.18	1.19	35.99
Nebraska:												
1914	7	106	41.12	12.41	2.65	.45	1.45	.32	.00	58.40	1.57	56.83
1915	3	57	18.60	10.35	2.16	.59	.74	.32	.16	32.92	1.57	31.35
Both years	10	163	34.36	11.79	2.50	.50	1.24	.32	.05	50.76	1.57	49.19
Kansas:												
1914	10	227	32.87	10.38	2.03	.68	1.17	.32	.00	47.45	1.09	46.36
1915	13	318	27.92	12.21	2.50	.46	1.03	.32	.18	44.62	1.09	43.53
Both years	23	545	30.07	11.41	2.29	.56	1.09	.32	.11	45.85	1.09	44.76
Grand total or general average:												
1914	45	914	33.71	12.24	2.50	.83	1.23	.32	.00	50.83	1.45	49.38
1915	51	980	27.88	11.80	2.35	.81	1.03	.32	.07	44.26	1.51	42.75
Both years	96	1,894	30.61	12.01	2.42	.81	1.13	.32	.04	47.34	1.48	45.86

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shown in Table 33) is $38.49, ranging from $30.16 in Nebraska and $30.43 in South Dakota to $43.47 in Iowa (not considering two farms in Illinois and one in Indiana). In Minnesota the gross cost is $33.51.

The average feed cost is $9.93, varying from $7.59 in South Dakota to $12.18 in Iowa and $12.32 for one farm in Indiana. The labor charge averages $2.50, and the equipment charge, $1.16.

Deducting the average manure credit of $1.89, the net cost of producing a yearling in this group is $36.60. The average weight ranged from 350 to 400 pounds.

Cost of producing a yearling in the mixed group.—The average gross cost of producing a yearling in the mixed group (see Table 34), based on records from 96 farms, is $47.34, ranging from $37.18 in South Dakota to $50.76 in Nebraska and $68.19 for two farms in Missouri. The feed charge is $12.01, ranging from $7.58 on two farms in Missouri to $13.45 in Iowa. The feed charges in the remaining States show but little variation, averaging from $10.55 in Minnesota to $11.79 in Nebraska. The item of labor is $2.42, while the equipment and interest charges are 81 cents and $1.13, respectively. The average net cost of producing a yearling in the mixed group, after deducting a manure credit of $1.48, is $45.86. The average weight of the yearlings in this group which were with the cows was nearly the same as that of the yearlings in the beef group, while the yearlings which had been fed skim milk compared closely to the dual-purpose yearlings.

Cost of producing a yearling in the partially-milked group.—The average gross cost of producing a yearling in the partially-milked group (see Table 35) is $43.26, varying from $30.27 in Nebraska to $47.66 in Indiana. The average gross cost is $45.22 for 1914, as against $37.27 for 1915. The feed cost ranges from $9.63 for two farms in Nebraska to $14.39 in Iowa (omitting one farm in Illinois), averaging $12.21 per yearling. The labor cost is $2.58, while the charge for equipment is 72 cents. Interest amounts to $1.01. The average net cost, after deducting a manure credit of $1.54, is $41.72. These yearlings were intermediate in size between those in the beef and dual-purpose groups.

Cost of producing a yearling in the double-nursing group.—The average gross cost of producing a yearling in the double-nursing group (as shown by Table 36) is $31.92, the average for Iowa being $32.57. The feed cost averages $10.24, while that for labor averages $1.85. Deducting a manure credit of $1.67, the average net cost of these yearlings is $30.25. The yearlings in this group weighed nearly as much as those in the beef group.

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TABLE 35.—*The cost of producing a yearling, based on the averages of 57 farms in the partially-milked group.*

State.	Number of farms.	Number of calves.	Average cost per yearling.									
			Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Risk.	Other charges.	Gross cost.	Manure credit.	Net cost.
Indiana:												
1914	14	117	$30.32	$12.08	$2.94	$0.86	$1.14	$0.32	$0.00	$47.66	$1.48	$46.18
Illinois:												
1914	1	10	13.05	18.30	2.48	1.25	.70	.32	.04	36.14	2.10	34.04
Iowa:												
1914	3	60	23.34	17.09	2.05	.76	.99	.32	.00	44.55	2.10	42.45
1915	4	54	25.17	12.36	2.09	.83	.97	.32	.01	41.75	2.10	39.65
Both years	7	114	24.38	14.39	2.07	.80	.98	.32	.01	42.95	2.10	40.85
Missouri:												
1914	18	193	29.44	13.36	2.55	.52	1.12	.32	.06	47.37	1.45	45.92
1915	8	129	23.45	8.79	2.78	.54	.88	.32	.02	36.78	1.45	35.33
Both years	26	322	27.60	11.95	2.62	.53	1.04	.32	.05	44.11	1.45	42.66
Nebraska:												
1914	1	22	32.41	13.65	.82	.71	1.19	.32	.04	49.14	1.76	47.38
1915	1	10	3.10	5.60	1.35	.67	.20	.32	.14	11.38	1.76	9.62
Both years	2	32	17.76	9.63	1.08	.69	.70	.32	.09	30.27	1.76	28.51
Kansas:												
1914	6	70	18.72	10.80	2.61	1.10	.76	.32	.00	34.31	1.22	33.09
1915	1	11	30.57	13.09	3.34	.61	1.15	.32	.11	49.19	1.22	47.97
Both years	7	81	20.41	11.13	2.71	1.03	.82	.32	.02	36.44	1.22	35.22
Grand total or general average:												
1914	43	472	27.49	12.87	2.71	.75	1.06	.32	.02	45.22	1.51	43.71
1915	14	204	23.00	9.88	2.52	.64	.87	.32	.04	37.27	1.64	35.63
Both years	57	676	26.39	12.21	2.58	.72	1.01	.32	.03	43.26	1.54	41.72

TABLE 36.—*The cost of producing a yearling, based on the averages of 22 farms in the double-nursing group.*

State.	Number of farms.	Number of calves.	Average cost per yearling.									
			Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Risk.	Other charges.	Gross cost.	Manure credit.	Net cost.
Indiana:												
1914	1	12	$32.35	$10.38	$2.25	$1.41	$1.16	$0.32	$0.00	$47.87	$1.29	$46.58
Illinois:												
1914	2	15	30.13	9.65	2.96	.96	1.09	.32	.00	45.11	1.92	43.19
Minnesota:												
1914	2	40	26.96	11.47	1.75	1.03	1.00	.32	.00	42.53	1.22	41.31
1915	1	20	21.67	9.22	1.58	.97	.81	.32	.08	34.65	1.22	33.43
Both years	3	60	25.20	10.72	1.69	1.01	.92	.32	.04	39.90	1.22	38.68
Iowa:												
1914	1	15	28.16	6.40	1.80	1.47	.97	.32	.00	39.12	1.92	37.20
1915	11	182	17.47	11.00	1.70	.79	.69	.32	.00	31.97	1.92	30.05
Both years	12	197	18.36	10.62	1.70	.85	.72	.32	.00	32.57	1.92	30.65
Nebraska:												
1915	1	7	16.65	9.63	3.26	1.97	.69	.32	.17	32.69	1.61	31.08
Kansas:												
1915	3	42	[1]—4.40	8.80	1.28	.88	.01	.32	.08	6.97	1.12	5.85
Grand total or general average:												
1914	6	82	29.11	9.84	2.25	1.14	1.05	.32	.00	43.71	1.58	42.13
1915	16	251	13.58	10.39	1.71	.89	.57	.32	.04	27.50	1.70	25.80
Both years	22	333	17.82	10.24	1.85	.96	.71	.32	.02	31.92	1.67	30.25

[1] Minus quantity indicates excess of credits above costs.

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A COMPARISON OF THE VARIOUS ITEMS OF EXPENSE IN PRODUCING A YEARLING.

The various items of expense in producing a yearling are compared by groups in Table 37, while the relation that each of these items bears to the total cost of producing a yearling is shown in Table 38. The winter-feed costs do not differ greatly in the four groups, varying from $9.93 in the dual-purpose group to $12.32 for the beef group. This item makes from 22.3 to 32.1 per cent of the total expense.

The labor charges in the dual-purpose, mixed, and partially-milked groups are very even, averaging approximately $2.50 for the three groups. The labor charge in the beef group is $2.19, while in the double-nursing group this charge drops to $1.85. Labor constitutes from 4 to 6½ per cent of the total cost.

The equipment charge ranges from 68 cents per head for beef calves, where a minimum amount of shelter is used, to $1.16 for those of the dual-purpose group. Many of the beef calves were allowed to run in the open, while those in the dual-purpose group were usually kept in buildings. The equipment charge makes from 1¼ to 3 per cent of the total. The interest charge makes from 2¼ to 2½ per cent of the total amount. The risk was uniformly 32 cents in all groups and made from one-half to 1 per cent of the total cost. The charges of taxes, insurance, and veterinary expense, taken together, made an expense of approximately 1 per cent.

The net maintenance cost of these calves, including all items of expense except cost at weaning time, and allowing credit for the value of the manure, is as follows: Double nursing, $12.43; dual purpose, $12.96; mixed, $15.25; partially milked, $15.33; beef, $15.34; there being an average difference of about $3 between the double nursing and the beef groups.

Although the cost of maintenance is nearly the same in all groups, there is a variation of a little over $23 between the cost of producing calves in the double-nursing and the beef groups. Those in the former group cost at approximately 13 months of age $30.25, while the beef calves cost $53.54. The costs in the other groups were as follows: Dual purpose, $36.60; partially milked, $41.72; mixed, $45.86.

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TABLE 37.—*The various items of expense in producing a yearling, compared by groups.*

Group.	Number of farms.	Average cost per yearling.									
		Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Risk.	Other charges.	Gross cost.	Manure credit.	Net cost.
Beef:											
1914	91	$39.41	$12.68	$2.21	$0.62	$1.40	$0.32	$0.03	$56.67	$1.59	$55.08
1915	99	37.09	11.98	2.18	.73	1.33	.32	.10	53.73	1.61	52.12
Both years	190	38.20	12.32	2.19	.68	1.36	.32	.07	55.14	1.60	53.54
Dual purpose:											
1914	47	29.41	9.85	2.55	1.21	1.07	.32	.02	44.43	2.03	42.40
1915	52	18.43	10.00	2.47	1.11	.75	.32	.05	33.13	1.77	31.36
Both years	99	23.64	9.93	2.50	1.16	.90	.32	.04	38.49	1.89	36.60
Mixed:											
1914	45	33.71	12.24	2.50	.83	1.23	.32	.00	50.83	1.45	49.38
1915	51	27.88	11.80	2.35	.81	1.03	.32	.07	44.26	1.51	42.75
Both years	96	30.61	12.01	2.42	.81	1.13	.32	.04	47.34	1.48	45.86
Partially milked:											
1914	43	27.49	12.87	2.71	.75	1.06	.32	.02	45.22	1.51	43.71
1915	14	23.00	9.88	2.52	.64	.87	.32	.04	37.27	1.64	35.63
Both years	57	26.39	12.21	2.58	.72	1.01	.32	.03	43.26	1.54	41.72
Double nursing:											
1914	6	29.11	9.84	2.25	1.14	1.05	.32	.00	43.71	1.58	42.13
1915	16	13.58	10.39	1.71	.89	.57	.32	.04	27.50	1.70	25.80
Both years	22	17.82	10.24	1.85	.96	.71	.32	.02	31.92	1.67	30.25

TABLE 38.—*The relation that each item of expense bears to the total cost of producing a yearling in the five groups.*

Group.	Number of farms.	Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Risk.	Other charges.	Total cost.
Beef:		*Per cent.*	*Per cent.*	*Per cent.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per cent.*	*Per ct.*
1914	91	69.54	22.38	3.90	1.09	2.47	0.57	0.05	100
1915	99	69.03	22.30	4.06	1.36	2.47	.59	.19	100
Both years	190	69.28	22.34	3.97	1.23	2.47	.58	.13	100
Dual purpose:									
1914	47	66.19	22.17	5.74	2.72	2.41	.72	.05	100
1915	52	55.63	30.18	7.46	3.35	2.26	.97	.15	100
Both years	99	61.42	25.80	6.50	3.01	2.34	.83	.10	100
Mixed:									
1914	45	66.32	24.08	4.92	1.63	2.42	.63	.00	100
1915	51	62.99	26.66	5.31	1.83	2.33	.72	.16	100
Both years	96	64.66	25.37	5.11	1.71	2.39	.68	.08	100
Partially milked:									
1914	43	60.79	28.46	5.99	1.66	2.35	.71	.04	100
1915	14	61.71	26.51	6.76	1.72	2.33	.86	.11	100
Both years	57	61.00	28.22	5.97	1.67	2.33	.74	.07	100
Double nursing:									
1914	6	66.60	22.51	5.15	2.61	2.40	.73	.00	100
1915	16	49.38	37.78	6.22	3.24	2.07	1.16	.15	100
Both years	22	55.83	32.08	5.80	3.01	2.22	1.00	.06	100

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TABLE 39.—*The difference between cost of production and inventory or sale value of calves and yearlings, by groups.*

Group.	Sold or inventoried at weaning time.					Sold Jan. 1 to July 1.						Inventoried May 1.				
	Number.	Average value.	Average cost.	Loss.	Gain.	Number.	Average date.	Average value.	Average cost.	Loss.	Gain.	Number.	Average value.	Average cost.	Loss.	Gain.
Beef:																
1914	996	$31.93	$35.69	$3.76	.....	206	Apr. 6	$44.35	$56.09	$11.74	.....	1,692	$38.17	$54.69	$16.52	.....
1915	555	36.11	33.56	.....	$2.55	26	Mar. 23	49.75	46.25	.....	$3.50	2,725	37.30	51.87	14.57	.....
Both years	1,551	33.45	34.92	1.47	.....	232	Apr. 3	45.16	53.77	8.61	.....	4,417	37.70	53.16	15.46	.....
Dual purpose:																
1914	64	20.57	44.50	23.93	.....	33	Mar. 7	33.90	32.03	.....	1.87	440	33.00	42.35	9.35	.....
1915	84	25.31	1.85	.....	23.46	108	Mar. 15	33.18	34.54	1.36	.....	465	29.33	31.37	2.04	.....
Both years	148	22.94	23.17	.23	.....	141	Mar. 12	33.41	33.75	.34	.....	905	31.17	36.80	5.63	.....
Mixed:																
1914	199	27.61	34.16	6.35	.....	30	Mar. 20	37.00	58.94	21.94	.....	903	35.93	48.95	13.02	.....
1915	59	27.62	28.11	.49	.....	77	Mar. 17	41.48	49.52	8.04	.....	872	31.95	43.24	11.29	.....
Both years	258	27.62	32.35	4.73	.....	107	Mar. 18	40.25	52.08	11.83	.....	1,775	33.85	45.97	12.12	.....
Partially milked:																
1914	104	26.68	32.44	5.76	.....	76	Apr. 13	40.29	43.64	3.35	.....	453	34.80	43.11	8.31	.....
1915	92	32.76	30.61	.....	2.15	22	May 1	42.00	29.06	.....	12.94	182	37.39	35.63	.....	$1.76
Both years	196	29.06	31.71	2.65	.....	98	Apr. 16	40.63	40.88	.25	.....	635	35.51	41.06	5.65	.....
Double nursing:																
1914	5	30.00	41.00	11.00	.....	.....	.....	.....	.....	.....	.....	82	32.50	42.13	9.63	.....
1915	3	30.00	21.26	.....	8.44	6	Mar. 1	51.00	31.08	.....	19.92	284	34.19	25.80	.....	8.39
Both years	8	30.00	31.13	1.13	.....	6	Mar. 1	51.00	31.08	.....	19.92	366	33.73	30.25	.....	3.48

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A COMPARISON OF THE COST OF PRODUCTION AND THE VALUE OF CALVES AND YEARLINGS.

In Table 39 the cost of production of calves in the five groups other than baby beef is compared with their sale or inventory value.

Approximately one-fifth of the calves produced were sold or inventoried at weaning time. The first part of the table shows the value of the calves that were sold at weaning time, together with a statement of gain or loss. Taking the two years' records as a whole, the calves bring an average of a little less than the cost of production, showing a loss of from 23 cents per calf in the dual-purpose group to $4.73 per calf in the mixed group. The loss shown in the 1914 records is much greater, as the calves in the area affected by drought not only cost more to produce, but were of a poorer quality than usual. In Kansas, where it is customary to keep the calves until they are two or three years old and then fatten them for market, many were sold for lack of feed. In the 1915 records the calves show a profit in all but the mixed group, where there was a loss of 49 cents per head.

The calves that were carried through the winter and inventoried when put on pasture the following spring generally show a loss which, in some instances, is greater than the cost of wintering. All the animals inventoried in 1914 show a loss ranging from $8.31 for those in the partially-milked group to $16.52 in the beef group. Of the calves inventoried in 1915, those in the partially-milked and double-nursing groups show a profit, while in the remaining groups the inventory value is less than the cost of production. The average for the two years shows a loss in all except the double-nursing group, where the average profit is $3.48. The beef calves average in cost $15.46 more than their inventory value as yearlings.

About 6.7 per cent of the calves carried through the winter were sold during the spring months. The average loss on these was less than that on the animals inventoried, it being evident that the farmers sold those calves which would bring the most money. With the exception of the dual-purpose group, where only 33 calves were sold, the calves sold in 1915 lost less than those sold in 1914.

The fact that so few calves were sold in the spring, and that these brought more than the average price, would indicate that the farmers realized that it is not usually profitable to carry stocker calves through the winter months unless the animals are held over and run on pasture until the following fall. This is true because a calf held over until the spring when he is a yearling has reached the period of greatest expense as compared with selling value. Had it been possible to continue the records on these animals until November or December, they would have shown a much smaller loss. The average charges for the summer season, including pasturage, interest,

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and other items of expense, would not have exceeded $8 to $10 per head, while the yearlings would have made sufficient gains in weight to have increased in value at least $15 to $20.

The figures in the table indicate that the calves in the double-nursing group were more profitable than those in any of the other four groups. Although this practice is the least common among farmers and only 22 records were procured, the figures obtained are very significant. The inventory value of the calves in this group is $4 less than that of the beef calves, and the cost of production is approximately $23 less. While the inventory value of the double-nursing calves is nearly the same as for the calves in the remaining groups, their cost of production was so much less that they showed a profit of from $10 to $15 over the others. These advantages are due to the milk credits (which were obtained without extra labor other than milking), to a larger percentage of calves produced by the cows, and to a larger proportion of the records being taken in the more favorable year of 1915. This indicates that the milking of the best cows and putting their calves on other cows is an economic practice. The figures also indicate that this method of handling the herd is one which deserves more careful attention on the part of the farmers, as it may prove to be the most profitable way of handling the breeding herd.

The calves in the dual-purpose group were evidently the poorest in quality, as shown by their inventory and sale values. However, the cost of production of the calves in this group is so low that they generally rank next to the double-nursing calves in profit.

The calves in the partially-milked group cost somewhat more to produce than did those in the dual-purpose group, but as this increased cost is reflected in the value of the calves, the profit or loss for the two groups is very nearly the same.

The calves in the beef group were of the best quality, but their cost of production was so much greater than the cost of those in the other groups that they seem to be the least profitable. In this connection it should be stated that on a number of farms one or more of the best bull calves were sold for breeding purposes at a much higher price than any of the figures given, these exceptional returns not having been included in the tables.

In the mixed group the practice is a combination of that followed in the dual-purpose and the beef group, and both the cost and the value of the calves raised are intermediate between those of these two groups. As but 37 per cent of the cows in this group are milked, the figures more nearly approximate those for the beef than for the dual-purpose group.

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FIG. 1.—A BUNCH OF CALVES THAT WILL MAKE EXCELLENT BABY BEEF.

FIG. 2.—TWENTY-ONE BABY BEEVES FROM SOUTHWESTERN IOWA THAT AVERAGED 924 POUNDS WHEN 16 MONTHS OLD. THESE ARE ABOVE THE AVERAGE OF THE BABY BEEVES ON WHICH RECORDS WERE TAKEN.

BABY-BEEF CALVES.

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COST OF PRODUCING BABY BEEF.

Records were obtained from 60 farms producing baby beef (see Table 40). Of these, 7 were visited two years in succession. In the case of one of the Missouri farms, the record is only for the finishing of the calves, which were purchased at weaning time at a price approximately the same as the average cost of production of the other calves of that State. While 2,072 calves were raised on these farms, only 1,642, or an average of 24½ calves to the farm, were selected to be fattened as baby beef. There were 381 calves purchased at weaning time, making the total number on feed 2,023, which was an average of 30.2 calves to the farm. This number varied from 27.4 in Missouri to 44 for two farms in Illinois.

TABLE 40.—*The number of calves raised and purchased which were fattened for baby beef.*

State.	Number of farms.	Number of calves.			Average per farm.		
		Raised.	Purchased.	Total.	Raised.	Purchased.	Total.
Illinois:							
1914	2	73	15	88	36.5	7.5	44.0
Iowa:							
1914	15	345	113	458	23.0	7.5	30.5
1915	30	688	169	857	22.9	5.6	28.5
Both years	45	1,033	282	1,315	22.9	6.3	29.2
Missouri:							
1914	3	35	20	55	11.7	6.6	18.3
1915	2	42	40	82	21.0	20.0	41.0
Both years	5	77	60	137	15.4	12.0	27.4
Nebraska:							
1914	6	165	14	179	27.5	2.3	29.8
1915	3	91	10	101	30.3	3.3	33.6
Both years	9	256	24	280	28.4	2.7	31.1
Kansas:							
1915	6	203	0	203	33.8	.0	33.8
Grand total, or general average:							
1914	26	618	162	780	23.8	6.2	30.0
1915	41	1,024	219	1,243	25.0	5.3	30.3
Both years	67	1,642	381	2,023	24.5	5.7	30.2

In general, those animals of suitable quality that were not desired for breeding purposes were selected for feeding, and a sufficient number of similar calves were purchased to make possible finishing in even carload lots. As the purchased calves were usually from near-by farms, and as their purchase price was approximately the same as the cost of the home-grown animals at weaning time, they have been included with the others as costing the same at weaning time. Plate V, figure 1, shows a bunch of calves on a farm in Kansas, a part of which are retained for breeding purposes, the remainder being finished as baby beef. Some of the calves were started on full feed at weaning time and were sold in the early summer. The rest were allowed to make a good growth during the winter months and fattened in the summer, either in dry lots or on pasture, the latter being sold in the late fall or early winter. The calves were carried for an average period of six to seven months from the time they were weaned. The average feeding period in Iowa was eight months.

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TABLE 41.—*The gross cost of producing a baby-beef animal, based on the average of 67 farms.*

State.	Number of farms.	Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Risk.	Other charges.	Gross cost.
Illinois:									
1914	2	$37.07	$27.97	$1.86	$1.24	$2.62	$0.32	$0.12	$71.20
Iowa:									
1914	15	37.53	34.85	3.02	1.15	2.03	.32	.03	78.93
1915	30	36.41	37.96	2.45	.80	2.38	.32	.06	80.38
Both years	45	36.78	36.92	2.64	.92	2.27	.32	.05	79.90
Missouri:									
1914	3	37.16	24.27	2.08	1.00	1.89	.32	.02	66.74
1915	2	34.41	27.80	2.83	.27	2.00	.32	.11	67.74
Both years	5	36.06	25.68	2.37	.71	1.93	.32	.06	67.13
Nebraska:									
1914	6	41.09	43.54	2.33	1.01	2.07	.32	.05	90.41
1915	3	27.08	27.90	3.63	.52	1.33	.32	.22	61.00
Both years	9	36.42	38.32	2.76	.85	1.82	.32	.11	80.60
Kansas:									
1915	6	40.36	25.96	2.00	1.11	1.71	.32	.22	71.68
Grand total or general average:									
1914	26	38.27	35.11	2.66	1.11	2.07	.32	.04	79.58
1915	41	36.21	34.97	2.49	.80	2.19	.32	.10	77.08
Both years	67	37.01	35.02	2.56	.92	2.14	.32	.08	78.05

TABLE 42.—*The net cost of producing a baby-beef animal, based on the average of 67 farms.*

State.	Number of farms.	Gross cost.	Credits.			Net cost.
			Manure.	Pork.	Total.	
Illinois:						
1914	2	$71.20	$5.90	$1.34	$7.24	$63.96
Iowa:						
1914	15	78.93	5.81	2.40	8.21	70.72
1915	30	80.38	5.86	2.11	7.97	72.41
Both years	45	79.90	5.84	2.21	8.05	71.85
Missouri:						
1914	3	66.74	4.41	.97	5.38	61.36
1915	2	67.74	4.22	2.17	6.39	61.35
Both years	5	67.13	4.33	1.45	5.78	61.35
Nebraska:						
1914	6	90.41	4.94	3.95	8.89	81.52
1915	3	61.00	4.94	1.05	5.99	55.01
Both years	9	80.60	4.94	2.98	7.92	72.68
Kansas:						
1915	6	71.68	3.36	1.24	4.60	67.08
Grand total or general average:						
1914	26	79.58	5.45	2.52	7.97	71.61
1915	41	77.08	5.35	1.91	7.26	69.82
Both years	67	78.05	5.39	2.14	7.53	70.52

The various items of expense in fattening these animals are shown in Table 41. The average gross cost is $78.05, while that for Iowa, where the greater part of the records were obtained, is $79.90. The initial cost of these animals averages $37.01, while the feed cost is $35.02. These two items make a little over 92 per cent of the total cost. Seventy-three per cent of the total feed cost is for concentrates, the remainder being for roughage and pasture. Corn was the principal grain used, forming 59.2 per cent of the feed cost. This was fed in the form of shelled corn or ear corn on all but eight farms,

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where corn-and-cob meal or ground corn was used. Oats, constituting 6.7 per cent of the feed cost, were used principally at weaning time, before the calves were started on corn. Oil meal and cottonseed meal, which were used in finishing, constitute less than 2 per cent of the total feed bill.

Hay was the most common roughage used in finishing the baby-beef calves, there being only two farms where it was not a part of the ration. It constitutes almost one-fifth of the total feed cost and amounts to $6.55 per calf. Silage was used on 17 farms, where it formed practically 19 per cent of the total feed cost. On 23 farms where the calves were fed on pasture, the pasture charge constitutes about 12 per cent of the total feed costs. The labor in caring for the calves amounts to $2.56, or 3.3 per cent of the total cost. The item of interest amounts to $2.14 per calf. Interest was charged on the average inventory value, which was determined in the same manner as for the yearlings, at the rate of 6 per cent per annum for the length of time that the calves were on feed. The risk charge was determined in the same manner as for the yearlings.

In obtaining the net cost of producing baby beef, it is necessary that the credits for manure and pork products be deducted. The value of these credits is shown in Table 42. The manure credit is assumed to be the same as for the breeding animals, and averages $5.39 per animal, varying from $3.36 in Kansas to $5.90 in Illinois.

Very few farmers can give any estimate as to the amount of pork that should be credited to the baby-beef animals. Nearly all of the calves were followed by hogs, but some of the pigs had the run of all the yards, while those confined with the calves were frequently shifted to other yards, and as sows that were being kept on maintenance rations frequently were included it was, in most instances, impossible to form even an approximate idea of the number of pounds of pork produced. It was therefore decided to credit 1 pound of pork to each bushel of shelled corn and one-half pound of pork to each bushel of corn-and-cob meal that was fed, basing the credit on the results of feeding experiments of three years' duration conducted in Indiana.[1] The price used for pork credits for the year 1914 was $7.85 per 100 pounds, and that for 1915 $6.60 per 100 pounds. These figures were determined by subtracting 50 cents per hundredweight from the average Chicago price of hogs for the calendar year, exclusive of light pigs. The 50 cents deduction is on the average very close to the cost of shipping hogs from the region where the majority of these calves were produced to the Chicago market.

The average net cost for baby beef, after deducting these two credits, is $70.52, which varies from $63.96 for two farms in Illinois in 1914 to $71.85 in Iowa, where most of the records were procured.

[1] Bulletin No. 146, Purdue University (Ind.) Agricultural Experiment Station, p. 605.

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These calves, when finished, averaged (market weights, see Table 43) 834 pounds. The lightest animals were from Kansas (747 pounds), having been fed for only 6.2 months, while the Illinois calves, which were fed 10.2 months, weighed 888 pounds. Plate V, figure 2, shows a carload of baby-beef animals that sold on the Chicago market in August, 1914, when 16 months old, for $87.60, weighing 924 pounds per head.

The baby-beef animals sold for an average of $73.45 a head (see Table 43), or $8.81 per hundredweight. The average price for 1914 was $72.11 per head, or $2.20 less than in 1915, the average difference per hundredweight being 17 cents. The selling price varied from $62.26 per head, or $8.24 per hundredweight, in Missouri to $80.28 per head, or $9.04 per hundredweight, in Illinois. The average cost of marketing was $2.15, making the farm value $71.30. The average farm profit for the two years was 78 cents per head, or 9 cents per hundredweight. In 1914 there was a loss of $1.42 on each baby-beef animal. The baby beeves sold in 1915 made a profit of $2.18 a head, or 26 cents per hundredweight. These animals generally weighed a little more than did those in 1914, and also brought a little better price.

TABLE 43.—*The weight, selling price, cost of marketing, farm value, and gain or loss for baby-beef animals, based on the average of 67 farms.*

State.	Number of farms.	Months on feed.	Average weight.	Per head.						Per hundredweight.					
				Net cost.	Selling price.	Cost of marketing.	Farm value.	Gain.	Loss.	Cost.	Selling price.	Cost of marketing.	Farm value.	Gain.	Loss.
Illinois:															
1914	2	10.2	888	$63.96	$80.28	$2.68	$77.60	$13.64	.....	$7.22	$9.04	$0.30	$8.74	$1.54	.....
Iowa:															
1914	15	7.1	803	70.72	70.45	2.01	68.44	.....	$2.28	8.81	8.84	.25	8.58	.....	$0.20
1915	30	8.3	867	72.41	78.21	2.57	75.64	3.23	.....	8.35	9.02	.30	8.72	.37	.....
Both years	45	7.9	846	71.85	75.62	2.38	73.24	1.39	.....	8.50	8.94	.28	8.66	.16	.....
Missouri:															
1914	3	6.8	776	61.36	64.37	.74	63.63	2.27	.....	7.88	8.30	.10	8.20	.29	.....
1915	2	7.1	720	61.35	59.08	1.57	57.51	.....	3.84	8.46	8.20	.22	7.98	.....	.53
Both years	5	6.9	754	61.35	62.26	1.08	61.18	.....	.17	8.11	8.24	.14	8.10	.....	.02
Nebraska:															
1914	6	6.8	896	81.52	77.40	2.04	75.36	.....	6.16	9.18	8.64	.23	8.41	.....	.69
1915	3	5.9	789	55.01	67.54	1.62	65.92	10.91	.....	6.96	8.56	.21	8.35	1.38	.....
Both years	9	6.5	860	72.68	74.11	1.90	72.21	.....	.47	8.45	8.62	.22	8.40	.....	.05
Kansas:															
1915	6	6.2	747	67.08	63.27	1.65	61.62	.....	5.46	9.02	8.47	.22	8.25	.....	.73
Grand total or general average:															
1914	26	7.2	828	71.61	72.11	1.92	70.19	.....	1.42	8.66	8.71	.23	8.48	.....	.17
1915	41	7.8	837	69.82	74.31	2.31	72.00	2.18	.....	8.35	8.88	.28	8.60	.26	.....
Both years	67	7.6	834	70.52	73.45	2.15	71.30	.78	.....	8.47	8.81	.26	8.55	.09	.....

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United States Department of Agriculture,
OFFICE OF THE SECRETARY.

Report No. 112.

[Contribution from the Bureau of Animal Industry, A. D. Melvin, Chief, cooperating with the Bureau of Crop Estimates, Leon M. Estabrook, Chief.]

MEAT SITUATION IN THE UNITED STATES.

PART IV.

UTILIZATION AND EFFICIENCY OF AVAILABLE AMERICAN FEED STUFFS.

BY

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EXPLANATORY STATEMENT.

In the winter of 1913–14 a committee of well-known investigators, familiar with agricultural conditions, was appointed by the Secretary of Agriculture to consider the economics of the meat situation. This committee was composed of Dr. B. T. Galloway, Assistant Secretary of Agriculture, as chairman; Dr. H. J. Waters, president of the Kansas State Agricultural College; Prof. C. F. Curtiss, dean of the Iowa State College of Agriculture and Mechanic Arts and director of the Iowa Agricultural Experiment Station; H. W. Mumford, professor of animal husbandry, University of Illinois; Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, United States Department of Agriculture; and Dr. T. N. Carver, Director of the Rural Organization Service, United States Department of Agriculture. Mr. Leon M. Estabrook, Chief of the Bureau of Crop Estimates, was made secretary of the committee.

No formal report was prepared by this committee, but, at the suggestion of the committee, independent inquiries dealing with several phases of the meat situation were undertaken by specialists of the United States Department of Agriculture. The results of these inquiries have been crystallized by the department in a series of five reports, under the general title of the "Meat Situation in the United States," each report complete within itself and bearing a separate number in the series of reports of the Office of the Secretary, as follows:

Part I. Statistics of Live Stock, Meat Production and Consumption, Prices, and International Trade for Many Countries. By George K. Holmes, Bureau of Crop Estimates. (Report No. 109.)

Part II. Live Stock Production in the Eleven Far Western Range States. By Will C. Barnes and James T. Jardine, Branch of Grazing, Forest Service. (Report No. 110.)

Part III. Methods and Cost of Growing Beef Cattle in the Corn Belt States. By J. S. Cotton and Morton O. Cooper, Office of Farm Management, and W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 111.)

Part IV. Utilization and Efficiency of Available American Feed Stuffs. By W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 112.)

Part V. Methods and Cost of Marketing Live Stock and Meats. By Louis D. Hall, F. M. Simpson, and S. W. Doty, Office of Markets and Rural Organization. (Report No. 113.)

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UTILIZATION AND EFFICIENCY OF AVAILABLE AMERICAN FEED STUFFS.

SUMMARY.

The Animal Husbandry Division, in cooperation with the Bureau of Crop Estimates, has made a study of feeding stuffs in which it is shown that a tremendous waste of feeding stuffs occurs annually on American farms. The total loss to farmers from the waste of corn fodder and straw amounts to about $102,860,000 each year.

In 1914 about 120,000,000 tons of straw was produced in the United States. Of this, 55 per cent was fed to live stock, while 15 per cent was burned, 8 per cent sold, and 22 per cent plowed under or otherwise disposed of. Greater publicity concerning the value of straw, its use as a filler in commercial feeds, and in various manufactures might aid somewhat in preventing its waste.

Corn stover produced in the United States is estimated at 245,253,000 tons, of which 81.5 per cent was fed to cattle and other stock. No data were obtained as to the percentage of this amount (81.5 per cent) that is wasted in feeding. At least 35 per cent of this total amount represents an actual waste. This waste can be checked through the use of better methods for feeding fodder and stover, and it can be almost entirely stopped through the use of silos. Of the total amount of stover produced, 3.7 per cent was burned, 10.2 per cent plowed under, and the rest sold or disposed of in other ways. Not only the fodder burned is wasted, but the fodder plowed under would also largely come under this category, as it is permitted to stand in the field until spring, and by that time has lost much of its fertilizing value through loss of leaves and leaching. Too great emphasis can not be placed upon the advantage of using as large an amount as possible of these materials for silage. Only 8.1 per cent of the corn acreage is now used in this way.

To feed the large quantities of straw and stover now wasted would necessitate the feeding of large quantities of concentrated feeds which are now disposed of in a less economical manner. For instance, more than 810,000 tons of cottonseed meal was used in six southern States in 1914 for fertilizer. If this had been fed to live stock and the manure used for fertilizer the value of the meal would have been increased from 50 to 85 per cent. This is true of all the oil meals used for both fertilizer and feeding purposes. The food value of these concentrated protein materials can be further increased through the more extensive use of silage.

A nation-wide campaign to teach the value and use of food-unit values for all the more common feeding stuffs would be a great step toward a more perfect agricultural system.

More experimental study of spineless cactus as a feed stuff is needed. Cactus will never be of great economical importance elsewhere than in the hot semi-arid regions.

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Common sugar cane and Japanese sugar cane are very promising forage crops for the extreme South. The utilization of the by-products of sugar cane, such as cane tops, bagasse, and blackstrap molasses, may save millions of dollars to cattlemen in the cane-growing section. Millions of tons of cane tops are permitted to go to waste every year.

Feterita and Sudan grass are two of the newer forage crops which may play a most important part in feed production in the semi-arid West. Sudan grass is an important hay crop in other sections of the country also because of its large yields and its resistance to drought.

Teosinte yields from 15 to 50 tons of green forage per acre in the extreme South. It is a promising crop.

The high cost of labor prevents roots from being more generally used in this country. Silage crops are more economical and serve almost the same purpose.

The animal by-products, such as tankage, fish meal, etc., are excellent feeds for hogs, but are little used for cattle.

Dried brewers' grains and distillers' by-products are in general use and are generally fed with care. Improvements could probably be made in the method of feeding the slop by the use of other concentrated feeds and some dry roughage.

Canning factory refuse could be increased in value by storing in silos rather than in huge piles in the open.

Beet pulp is usually handled in an economical manner and comparatively little of it is wasted.

NEED FOR STUDY OF EFFICIENCY OF FEED STUFFS.

American methods of feeding cattle and other live stock have never involved a very close study of the economics of the national feed situation. Heretofore feeds, labor, etc., have been very abundant and have been available at such low prices that close calculation in their use has been unnecessary. But competition has now arisen to such an extent, and the prices of raw materials in comparison with sale values of the finished product have become so high, as to make cattle feeding in a great many cases unprofitable. During past years the tendency in this country has been for a few feeders to produce the entirety of our beef supply. In European countries this situation, to a large extent, is reversed, each farmer feeding a small number of cattle. This difference may be accounted for in three ways: First, cattle feeding in Europe has been practiced for more than 200 years. Second, farmers in general in those sections seem to have a greater knowledge of the nutritive value of feeds, as well as greater ability in the practical use of them. Third, the dense population in European countries has necessitated the use of very intensive methods along all lines of production. European farmers as a whole show greater knowledge of the scientific phases of the different feeding operations than American farmers. At the present time European feeders are using a great deal of cottonseed meal, and it is a fact

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that they know more about its feeding value than the average American farmer. Putting the matter tersely, one of the greatest needs of the American farmer to-day is education in the use of both commercial and farm-grown feeds.

In purchasing feeding materials, European farmers consider the cost of the feed per pound of nutrients. Few American farmers have a definite idea of the different nutrients which compose the feed stuffs or their uses. With the State feed control offices and with laws regulating the adulteration of feeds, American farmers have excellent facilities for protection in the purchase of feeding materials, but few farmers avail themselves of the opportunities offered in this way. Such protection is valuable only when the farmer has some idea of the nutritive value of feeds, and, having this knowledge, makes use of it in the purchase of supplies.

If some simple method of calculating the comparative feeding values of various feeds could be devised, so as to show numerically the food value of each feed, and if such food value, along with the percentage of digestible protein, were printed on each tag attached to a feed bag, the farmers would undoubtedly soon learn the relative values of the various common feeds. Such a system would tend toward a more economical use of feeds.

In the United States the chemical analysis of feeding stuffs is usually printed on tags which are attached to each sack of feed. This chemical analysis alone is of little value to the feeder. If the amount of digestible nutrients in each 100 pounds of the feed could be shown in addition to the chemical analysis, the information conveyed would be far more valuable to him.

In gathering material for this report, studies have been made of nearly all of the feed stuffs which are available in the United States. Certain of our newer feeds need study and exploitation. However, as a rule, these newer feed stuffs are limited to certain comparatively small sections of the country; the common feeds which have been in daily use for years offer greater opportunity for improvement.

This report deals chiefly with the more efficient utilization of the extensively available feeds rather than the exploitation of feeding materials of more recent origin or less extensive use. As a rule, new feeds are extensively exploited by individuals or corporations, while opportunities for the more efficient utilization of our older or more common feeds have been very largely overlooked. As an example, corn and small grains have been grown in this country since it was first settled, and data which are given later show the greatest total loss of available feeding material is from the misuse of the by-products of such crops. Lack of knowledge concerning the efficient use of available feeds is costing the American farmer enormous sums

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annually. This loss will not be stopped unless its amount, together with suggestions as to how it may be averted, is forcibly brought to the attention of farmers.

RELATION OF CATTLE MARKETS TO FEED SUPPLIES.

Our great beef cattle markets have developed at convenient points intermediate between producer and consumer. The beef-cattle industry around these markets has grown rapidly. The centralized markets played a most important rôle in the development of the cattle industry of the West. Cattle were produced on the western ranges, while the center of consumption was east of the Mississippi and north of the Virginias and Kentucky. The markets located at the central points afforded convenience in handling both the live cattle and the meat products and lessened the cost to the consumer.

During recent years the centers of cattle production have been gradually shifting to a certain extent, and beef production is being taken up in new territory. When this is considered along with the fact that refrigeration and transportation facilities for beef products have improved greatly it is seen that the large centralized packing plants now in existence may not be so essential to future development of the industry as formerly. The tendency will probably be to raise and to feed the stock nearer the places where the feeds and pastures exist and to ship the live stock or meat products to the large distributing centers or areas of consumption.

Frequently it will be cheaper to utilize the feeds near the points where they are produced, and ship the fattened cattle or the dressed meat, than to ship either the feed or the cattle, or both, to sections near the great packing houses for fattening and subsequent slaughtering. The smaller packing houses and abattoirs located in the areas producing feed stuffs may play a prominent part in the development of the cattle industry of the future.

Cottonseed meal, a southern product, is being extensively used at northern feeding plants. Many southern cattle are shipped into the North and West to be finished for market, while the meat is often returned south for sale. In the South, where enormous quantities of grass and fodder are going to waste, not a large percentage of the cottonseed meal is being used for feeding. The Southern States should raise, fatten, and slaughter their cattle to the extent of supplying their own needs; after that if a surplus of either cattle or cottonseed meal exists it should be shipped to other sections of the country. Freight is often paid several times on feeds and feeders for fattening purposes, paid again on the cattle going to some far-off market for slaughter, and again on the dressed meat going back to the place where the cattle were fattened. This seems like a most extravagant

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waste of money and is a state of affairs which, to a certain extent, could be remedied by raising, fattening, and slaughtering cattle in the same section. These apparently wasteful methods are frequently justified, however, by existing conditions which are often overlooked by the casual observer. The lack of adequate slaughtering facilities, well organized and equipped markets, the necessary capital, transportation and refrigeration in transit facilities, and a constant and sufficiently large supply of cattle and hogs will often prevent the slaughtering of cattle at a profit in the section where they are raised and fattened. In such cases it may be better to ship the fattened animals to some of the large markets.

Similar conditions exist in a portion of the West, embracing Colorado, Nebraska, Wyoming, the Dakotas, and Montana, where enormous quantities of roughages are wasted or can be purchased cheaply, and where cattle are plentiful, but few are finished for the market.

STRAW.

In European countries the greatest care is given to the feeding of all straws and other farm roughages. Frequently the straws are chopped up and mixed with other feeds, such as beets, mangels, silage, etc., so as to make the straw more palatable. Some farmers are so careful in the preservation of straw that after it has been used for bedding, and later distributed over their fields, it is raked up and again used for bedding, after lying on the ground until it has become clean and free from manure. There are no signs of such thrift in this country. In certain sections opportunity is not even given the cattle to consume the straw and fodder, for in some states almost the entire crop is burned. Fifteen per cent of the straw produced in the United States, as shown by the Bureau of Crop Estimates, is burned, and probably as much as this is otherwise wasted. Of course in some of the sections of the United States where straw is burned there are few cattle, and the material consequently has little or no value because of the distance from market; nevertheless some provision should be made for its utilization. If this straw were combined with some of the home-grown concentrates, not only would the feed yield a profit in return for beef but the manure would have great value in building up the soil.

In certain sections of the United States straw of good quality when baled costs as much as $15 per ton, and sometimes even higher prices are paid. The value of oat straw, based upon present conditions, will probably run somewhat higher than $10 per ton, while the average value of all straw produced is probably about $5 per ton. In other words, straw produced on the farm is probably worth this amount

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to the farmer if he will use it properly in his farming operations. According to the Bureau of Crop Estimates, the actual value that is placed upon straw of all kinds is about $3.70 per ton. Based upon this value, farmers are losing something like $1.30 per ton for every ton of straw produced. This loss per ton would constitute a total annual loss on the whole crop of about $156,000,000.

To bring these straws up to their real value on the farm would necessitate their being fed or used as bedding for cattle and other live stock. The gain which accompanies this feeding because of increased soil fertility can hardly be calculated, but needless to say it would be enormous. Of all systems for obtaining permanent soil fertility, none is so practical or as easily available as that of feeding live stock.

The economical feeding of cattle necessitates the use of large amounts of roughages. Experiment stations have found no more efficient way of utilizing farm roughages than through cattle. Considering these factors in all their phases it seems that there is little doubt that systems of crop growing, permanent soil fertility, and cattle feeding are interdependent.

The total production of grain straw in the United States in 1914 is estimated at about 120,000,000 tons, or an average of 1.14 tons per acre from 105,406,000 acres producing wheat, oats, barley, rye, rice, flax, and buckwheat. At an average value of $3.71 a ton, the total value of this straw would be about $446,000,000. The magnitude of the annual output of straw may be appreciated when these figures are compared with the total production of cultivated hay, which in 1914 was estimated at 70,071,000 tons. In other words, there is about one and two-thirds as much straw as cultivated hay produced in the United States. The total value of straw as given above is exceeded only by the value of such crops as corn, wheat, oats, hay, and cotton.

Of the total production of straw, it is estimated that about 55 per cent (64,708,000 tons) is fed to live stock, 15 per cent (17,613,000 tons) is burned, 8 per cent (9,212,000 tons) is sold, and 22 per cent (26,221,000 tons) is plowed under or otherwise disposed of. The amount of straw burned (17,613,000 tons), if valued at the average of all straw for the United States, namely, $3.71 per ton, would be worth about $65,000,000. Of course, in the sections of the country where straw is burned it is not valued at this amount, but this represents, roughly, the amount of potential feedstuffs of which no use is made.

The following table, which gives the results of an investigation by the Bureau of Crop Estimates, shows the quantity in tons and percentages of the various kinds of straw used for different purposes:

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Uses made of straw.

Kind of straw.	Yield per acre.	Value per ton.	Total value.[1]	Quantity.[1]						Percentage.				
				Fed.	Burned.	Sold.	Plowed under.	Bedding, etc.	All uses.	Fed.	Burned.	Sold.	Plowed under.	Bedding, etc.
	Tons.			*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
Wheat	1.19	$3.01	$192,059	28,586	14,357	5,168	7,210	8,486	63,807	44.8	22.5	8.1	11.3	13.3
Oat	1.09	4.57	191,136	30,029	1,506	3,011	2,928	4,350	41,824	71.8	3.6	7.2	7.0	10.4
Barley	.98	2.39	17,762	4,459	988	268	855	862	7,432	60.0	13.3	3.6	11.5	11.6
Rye	1.29	4.90	16,087	791	397	696	696	713	3,293	24.1	12.1	20.9	21.2	21.7
Rice	2.03	6.11	8,603	843	365	79	13	108	1,408	59.9	25.9	5.6	.9	7.7
All straw	1.14	3.71	436,867	64,708	17,613	9,212	11,702	14,519	117,754	54.9	15.0	7.8	10.0	12.3

[1] 000 omitted after each number in these columns.

There is considerable variation in the uses to which the different kinds of straw are put. Thus, although nearly 72 per cent of oat straw is fed, only 24 per cent of rye straw is fed; and while 22 per cent of the wheat straw is burned, less than 4 per cent of the oat straw is burned. In North Dakota a larger proportion of the straw is burned than in any other State. About 66 per cent of the wheat straw and 96 per cent of the rye straw in that State is burned, but only 20 per cent of the barley and 6 per cent of the oat straw is disposed of in that manner. Including flax and buckwheat straw, this amounts to about 2,500,000 tons.

Of the total amount of straw produced annually in the United States, 54.9 per cent, or 64,708,000 tons, is estimated to have been used for feeding purposes. The amount used for bedding is estimated at 12.3 per cent, or 14,519,000 tons. According to these data the total amount used in live-stock production would be about 67.2 per cent, or 79,227,000 tons. The straw that was sold, plowed under, and burned amounts to about 32.8 per cent of the total, or 38,527,000 tons. More than one-third of the total production of straw is being used to disadvantage, of which one-half is an absolute loss. If straw is not used by live stock or plowed under, its value as a soil-enriching material is mainly lost. Its chief value as a fertilizing material lies not in its fertilizing elements, but in its tissues as a source of humus. The burning of straw, then, even though the ashes leave a small amount of additional mineral matter in the soil, results in an almost total loss. Straw is seldom burned, except in the West. The people in that section follow this method mainly because of custom rather than because of any inability to purchase, feed, or market meat-producing animals. They have come to believe that the straw is of no value because it has never been used for anything in that section. In some of the Western States a campaign has been made by the colleges of agriculture and institute workers to get farmers to use a portion of their waste straw for spreading over

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their grain fields. There is still much room for improvement in this respect.

A very interesting series of experiments has recently been completed at the Indiana Experiment Station, testing the feeding value of oat straw. It was found that a ration of corn silage, corn, and cottonseed meal was just as valuable for economy and extent of gains when used with oat straw as the same ration when fed with clover hay. In other words, oat straw can be used advantageously and profitably to replace clover hay when fed with corn silage, corn, and cottonseed meal. As such a ration is extensively used in various parts of the United States, the practical value of this can be readily seen.

Straw when fed to fattening animals has a certain corrective property, and a great many practical feeders advise that it be kept before the steers at all times. It is especially valuable in feeding calves or baby beef. Straw is rather bulky and has great absorbing power; these qualities are a great help in offsetting the heating effects of concentrated feeds, especially with cattle that are consuming a heavy grain ration.

The methods of feeding and systems of management which are in vogue in Europe, while necessary in that country, are not so essential in the United States. In that country straws are very largely chopped or shredded before feeding, and some of the feeds are cooked while others undergo special preparation requiring much labor. Feeders in Europe can afford to do this because their feeds are comparatively high, while labor can be obtained at a low rate, and the value of the expensive feeds is economically increased through the use of cheap labor. Under those conditions the additional labor is used at a profit. Conditions are not parallel in America. Labor is much more expensive and the additional labor that would be required to prepare our feeds in a similar manner would result in a financial loss. With an increased population, conditions in America may change, but at the present time European methods, while very instructive in themselves to American feeders, are not entirely applicable to this country.

There are certain sections where, at the present time, owing to market conditions, lack of concentrated feeds at reasonable prices to supplement these straws, etc., cattle feeding is hardly possible. Under such conditions the directing of these materials into manufacturing channels seems to be a probable solution. Heading and turning the whole straw under the soil would mean a great saving compared with the present methods.

Specific advice concerning the details of the utilization of wasted straws can not be taken up in this discussion. There has always been a more or less limited demand for American straws in the manufacture of such articles at hats, paper, strawboard, packing

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cases, horse collars, etc. With the development of modern machinery and manufactured products more straw will probably be used.

In order that the reader may get a more definite idea of how straw can often be used economically, a number of rations to be used in wintering the breeding herd of beef cattle are given herewith.

RATIONS FOR WINTERING BREEDING COWS.

Ration 1—	Pounds.
Straw	10
Silage	20
Cottonseed meal or linseed meal	1½
Ration 2—	
Straw	20
Cottonseed cake or oil cake	2
Ration 3—	
Straw	10
Shock corn	10
Cottonseed meal	1

In case it is believed the animals should have more feed, the straw should be increased.

A yearling may be fed three-fourths of the ration mentioned, and may be expected to come through the winter in fair to good condition. The breeding herd or stocker steers can be wintered very economically on any of the rations named.

It is not at all uncommon for some of the Western States, such as Kansas, Nebraska, the Dakotas, and Montana, to have much more grass than they have cattle. This is partly due to the practice of buying steers in the spring. If stocker cattle are very high at that time some of the pastures remain unfilled. Where there is an abundance of straw on hand stocker cattle could be bought in the fall of the year, when such stock is relatively cheap, and wintered on straw and cottonseed cake or oil cake. This would insure having steers for the grass during the summer. This method would utilize waste feeds and waste pasture and would tend to increase the meat supply.

For fattening animals straw should always be within reach so that the animals may eat straw at will. They will usually eat from 3 to 5 pounds per day.

CORN STOVER.[1]

The estimated total yield of corn stover in the United States is 245,253,000 tons. The production of the different sections is as fol-

[1] The data on corn stover here given are based upon estimates made by county crop reporters of the Bureau of Crop Estimates. The proportion of the corn acreage stated as used for silage (8.1 per cent) and that cut green for feed (10.9 per cent) are regarded by some experts as excessive. More conservative estimates would be 5 per cent put into silos and 7 per cent cut green for feed. These differences, however, do not materially affect the conclusions drawn from the data. The proportion of the corn crops which goes into silos is rapidly increasing from year to year, and within a few years will exceed the percentage shown by crop reporters' estimates.

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lows: North Atlantic, 8,176,000 tons; South Atlantic, 12,824,000 tons; North Central east of the Mississippi River, 58,038,000 tons; North Central west of the Mississippi River, 125,352,000 tons; South Central, 39,193,000 tons, and Far Western, 1,670,000 tons. According to figures from the Bureau of Crop Estimates, the corn stover was disposed of as follows: 57.9 per cent (142,000,000 tons) was fed to cattle; 23.6 per cent (58,000,000 tons) fed to other live stock; 3.7 per cent (9,000,000 tons) burned; 10.3 per cent (25,000,000 tons) plowed under; 2.6 per cent (6,000,000 tons) sold, and 1.9 per cent (4,000,000 tons) used for other purposes, most of which was for bedding. The States that lead in the practice of burning corn stover and the percentage of the total crop that is burned are given herewith: Texas, 8 per cent; Louisiana, 7 per cent; Arkansas and Iowa, 6 per cent; Missouri, Nebraska, and Mississippi, 5 per cent; Illinois, 4 per cent; West Virginia, Indiana, South Dakota, Kansas, Kentucky, Oklahoma and Idaho, 3 per cent. The other States burn quantities ranging up to 3 per cent of the total production. Corn is grown in all States, but 20 report that no stover is burned. The North Central States west of the Mississippi and the South Central States lead in the practice of burning, with 4.4 and 4.3 per cent respectively. The yield of dry stover, as estimated, varies from 1 to 6½ tons per acre, with the average close to 3 tons per acre. The estimated value of this is about $2 per ton.

The disposition of corn stover in the United States is very similar in character to the disposition of straws, though differing somewhat in degree. About 55 per cent of the straw is fed, while 81.5 per cent of the stover is utilized in this way. Of the amount of stover fed to live stock, however, it is estimated that at least 35 per cent is wasted. Straw is burned to the extent of 15 per cent, while only 3.7 per cent of the stover is disposed of in this manner. Straw sold amounted to 7.8 per cent, while only 2.6 per cent of the stover is marketed. This is to be expected since straw is more easily handled in marketing. About 12 per cent of the total straw is used for bedding, while less than 2 per cent of the stover is used for this purpose.

It is needless to say that burning is practically an absolute waste. It seems that burning offers a quick and easy method of cleaning the ground preparatory to plowing. This system is most largely practiced where the corn is snapped or husked, leaving the stalks standing in the field.

Corn stover is an excellent roughage for use in wintering cattle when a small amount of grain or other concentrate is used with it. It is especially valuable in the wintering of mature breeding cows. In some sections of the United States cattle are wintered with stover

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as the sole roughage, supplemented with a small amount of grain. Breeding cows or stockers will winter nicely on stover and oat straw, together with a small amount of either cottonseed meal, linseed-oil meal, or corn. The meal when fed without other grain should be fed in the cake form and preferably of nut size. When fed in this manner it is not lost by dropping through cracks or blowing away and is not spoiled by being wet with saliva or rain.

In preparing stover for feeding purposes, cutting and shocking under general conditions involves less labor, and the waste is about offset by this factor. Chopping or shredding increases the palatability and reduces the amount of storage space for housing the crop, but the labor involved in this method increases the cost of preparation very much. Where cheap power and labor are available on the farm, shredding or cutting is to be recommended.

Of all methods of handling corn, ensiling is by far the most economical, although, because of the need for the grain itself, not all corn can be put into the silo. In sections where pastures are not available it is economical to use silage throughout the year. Of the total acreage of corn in 1914 (103,435,000 acres), about 8.1 per cent, or 8,378,000 acres, was put into the silo. About 10.9 per cent of the total acreage, or 11,274,000 acres, was cut and fed as green feed. Nearly 81 per cent was allowed to mature for grain. Of the corn that was left to mature for grain, 57.7 per cent was snapped. That which was cut and shocked in the field is estimated as 24.9 per cent. That which was cut and hauled to the barn for husking, most of the stover of which was shredded, amounted to 9.1 per cent. Only 2.6 per cent of the corn which was left to mature in the field was pastured or "hogged down." The balance, or 5.7 per cent, was handled in some other way.

A practice in certain sections which is both uneconomical and wasteful is that of "pulling the fodder" or stripping the leaves from the stalk, leaving the stalks to be subsequently burned. Of the corn that is allowed to mature in the field about 19 per cent is handled in this way. Another wasteful practice is that of "topping" the corn. By this method the stalk above the top ear is removed and either stored or shocked for fodder. About 13 per cent of the matured corn is handled in this way. Of the stalks that are left standing in the field 35 per cent are pastured, 33 per cent are plowed under, and 12 per cent are burned.

The total value of the stover produced in the United States in 1914 was about $436,867,000. Almost 4 per cent, as stated above, or about $14,757,000 worth of this stover was burned. Such facts are astonishing when one considers the food value of the material thus destroyed. To utilize the straw and stover which at the present time are being wasted would, if these materials were fed to cattle, involve the use

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of large amounts of concentrated feeds. From the standpoint of national economics, this is just what is needed, since we are annually exporting from this country large amounts of concentrated feeds, such as cottonseed meal and cake, corn, molasses, peanuts, and beans. Besides the feed which is exported, more than 1,000,000 tons of cottonseed meal are annually being used directly for fertilizing purposes. The utilization of this meal and other feeds with our wasted straws and stover would mean not only a tremendous saving in the cost of producing beef and additional profit in the feeding of the cattle but also a tremendous saving in the cost of enriching the soil. The losses from these sources, from a nation-wide standpoint as well as from the standpoint of the individual farmer, constitute a greater loss than the total of all other losses (excepting that from disease) occurring upon the American farm to-day. The total loss occurring annually through the wasting of straws and corn stover amounts to about $102,860,000. Farmers should be told of these losses by all means and instructed in the methods by which they may be prevented.

BY-PRODUCTS OF OIL-BEARING SEEDS.

The cheapest source of protein to-day for cattle feeding is the by-products of our oil-bearing seeds. All the feeds necessary for the feeding of live stock can hardly be grown on the farm. Even under intensive European methods European farmers find it necessary to purchase a certain portion of their concentrated feeds. Of course if the entirety of the material which is needed for feeding purposes can be grown on the farm it is essential that this course be followed. With the existing farm conditions cattle feeding alone will not keep up soil fertility if this up-keep depends upon the feeds which are grown upon the farm entirely. Some of the plant food is bound to be marketed in the form of beef, milk, or other live-stock products. Besides this, other losses of plant food continually occur. On most farms the purchase of additional high-protein concentrates from a permanent soil fertility standpoint is essential. Such procedure, if carried on continually, and if a sufficient number of cattle are fed, should result in a sufficiently fertile soil without the use of other nitrogenous fertilizers. The use of lime, phosphates, and potash, however, where needed, should not be discontinued even though a large number of cattle are kept.

COTTONSEED MEAL AND LINSEED MEAL.

Cottonseed meal and cake are the most important of the by-products of our oil-manufacturing industry. It is the most important not only because of the quantity produced but also because of its great efficiency as an economical source of protein.

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Next in importance to cottonseed meal is linseed meal. Linseed meal is produced in much smaller amounts than cottonseed meal, but in sections where it has been used for any great length of time it is the most highly favored of all the protein-supplying concentrates. In other sections cottonseed meal is favored or is gaining in favor. At the present time, however, linseed meal is a more expensive source of protein than cottonseed meal, even where a greater freight rate has to be paid to obtain the latter commodity.

Soy-bean, peanut, and sesame cake or meal are also by-products of oil-bearing seeds which have value in supplying protein in a concentrated form. These by-products can be obtained in this country only in small amounts. At the present time very few establishments are expressing the oil from such seeds.

Other important by-products of the oil-expressing industry are copra cake and meal, which is the residue from copra after expressing the coconut oil. Copra in turn is the kiln-dried or air-dried fruit of the coconut. Palm-nut meal, which at present is not obtainable at all in this country, is still another by-product of this industry.

American plants express more cottonseed and linseed oil than those of any other country in the world, but France leads in the pressing of all other oil-bearing seeds.

Correspondence with oil-expressing companies gives the information that this industry is likely to be a great deal more extensive within a few years; in fact, the companies say that a great opportunity is open for manufacturing along these lines. The greatest drawback in the development of the industry heretofore has been the fact that manufacturers have been unable to interest American farmers in feeding the by-product, nor have the manufacturers been able to dispose of it through other channels.

As American cottonseed-oil crushers have been unable to find a market for their entire output of meal and cake in the United States. nearly 400,000 tons of these feeds were exported in 1914. More than 500,000 tons were exported in each of the years 1912 and 1913. Some of this American-made meal and cake was sold in Europe at a lower price per pound than American feeders were paying for similar meal or cake at home. A high quality of meal is required for the European trade, and the percentage of protein must run between 40 and 55 per cent. This high-protein meal under present conditions is the most economical meal to buy, but high-protein meal is seldom sold on the domestic markets. In 1914 English feeders were paying $39 to $40 per ton for cake with an analysis of 48 to 55 per cent protein, while meal and cake in the United States with a test of only 38 per cent of protein was selling for $28 to $32. This discrimination is the result of an effort on the part of crushers to compete

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with other oil cakes on European markets. It occurs also because Europeans know more of the value of such feeds and demand a better article than the average American farmer. Not only are crushers expanding their trade in cottonseed meal for feeding purposes, but they are heavily exploiting the use of cottonseed meal as a fertilizer. During 1914 about 1,000,000 tons, or one-half of the total amount produced, was used for application directly to the soil.

The following amounts of cottonseed meal were used for fertilizing purposes in each of the States named: Mississippi, 160,000 tons; Georgia, 251,981 tons; South Carolina, 188,192 tons; Connecticut, 7,000 tons; Alabama, 100,000 tons; Florida, 35,868 tons; Massachusetts, 7,000 tons; North Carolina, 75,000 tons.

There are other States which used cottonseed meal for this purpose, but the quantity was negligible or the data were unobtainable. In several States no meal is used at all for this purpose. The nitrogen in a ton of cottonseed meal is worth as much as the meal usually costs. At the same time, the use of cottonseed meal as a direct fertilizer is an exceedingly poor practice, since cottonseed meal, after being fed to cattle, will return 75 per cent or more of the original fertility to the soil in the form of manure. Only one-fourth of its original fertilizer value is lost in feeding to cattle, and cattle will usually make profitable gains on cottonseed meal when fed the necessary roughages.

At the present time we are exporting annually to England alone 150,000 tons of cottonseed meal, 200,000 tons of corn, and 50,000 tons of blackstrap molasses, as well as other feed stuffs. It would seem advisable to use at least a portion of these materials, together with our farm roughages, for putting more cattle, fatter cattle, and more dairy products on the market.

Denmark annually feeds 478 pounds of oil cake, most of which is cottonseed cake or meal, to each of the mature cattle in that country. The 1913 census showed that the United States had 56,527,000 head of mature cattle of the beef and dairy types. American dairymen and cattle feeders during the year 1913 used approximately 690,000 tons of cottonseed meal and cake for feeding purposes. (Note that the amount fed was only a little more than one-third of the total American production, although cottonseed primarily is a cattle feed.) Taking these figures as a basis, the United States uses approximately 24 pounds of cottonseed meal per head of mature cattle. Data could not be obtained for the consumption of linseed meal.

The cottonseed meal which is being produced in the United States should be almost entirely used at home for feeding cattle. An increased cottonseed-meal consumption could be brought about in three different ways: First, by feeding our present type of cattle more of

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this feed; second, by improving the size and type of our cattle; and, third, by increasing the number of our cattle. The resulting increase in dressed beef could be used up in home consumption and in exports.

COCONUT BY-PRODUCTS.

At the present time dealers in edible oils advise that considerable opportunity is offered concerns that will develop the copra-crushing industry of this country, if they can find a market for their by-products. This material if crushed in the United States would offer a very valuable source of concentrated protein food. The by-product obtained from this industry is copra cake and meal. The only place which can be found where this material is being fed in the United States at the present time is about one or two local points in California. The imports of copra during the last two years have fallen off considerably. Manufacturers who are using coconut oil claim that the oil can be imported more economically than they can import the raw copra and crush it in this country. European feeders and people in this country who are using copra meal find that it is a valuable feed stuff. It is especially valuable as a dairy feed. At the present time this feed is of very little economic importance in the United States, since this country produces more concentrated feed than her cattle now consume. There may come a day when copra meal will have a great economic value in this country, but that time seems far off.

OTHER OIL MEALS.

Peanut and soy-bean meals and cake are of more importance than copra meal, since both peanuts and soy beans are grown extensively in portions of this country. These meals are the by-products of the manufacture of oil from these seeds. Large amounts of peanuts are crushed at Marseille, France. Soy beans are crushed most largely in Manchuria and to some extent in England. In some sections of Germany the dairy feeders prefer peanut meal to any other oil meal, and feed it as the principal source of protein. It is in good demand everywhere on the European Continent. Peanut cake in Europe, like linseed cake and meal in this country, has become so popular that the price has advanced to a point where it is not considered as economical as some other forms of oil meal.

Soy-bean meal is a product that has sprung into prominence in European countries in the last few years. Soy-bean cake has been imported from Manchuria to some places on the Pacific coast, and reports are to the effect that its use has been quite satisfactory.

With the development of the industry of expressing oil from peanuts and soy beans an additional quantity of high-protein feed will be added to our present supply of such feeds.

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In European countries oil meals are fed mostly in the cake form. The people are suspicious of most ground feeds, since feed in such form offers better opportunity for adulteration. In shipping from this country, cottonseed cake is much easier handled and less waste is incurred than if shipped as meal in bags. Europeans prefer to feed oil cakes that have been "checkered." In preparing the cake in this way "crisscross" lines mark the cake off into smaller cakes which are uniform in size and weight. When marked in this way the cake is handier to feed, since the weight of each cake is known, and each small cake can be easily and cleanly broken off from the large cake. In feeding this material some English feeders break the cake and place each cow's ration directly in her mouth.

English feeders use large quantities of "compound" cakes. These cakes are mixtures of different materials, chief among which are oil meals of different kinds, corn, wheat, bran, molasses, etc. We annually ship about 50,000 tons of molasses to England, most of which is used as a "binder" and appetizer in the manufacture of the "compound" cakes.

As yet none of these mixed commercial feeds have been pressed into the cake form in this country. The use of mixed or commercial feed has been somewhat discouraged here, since certain firms have not been as careful to turn out a good product as they might have been. To a certain extent the use of such feeds is to be recommended, since their manufacture offers use for large amounts of alfalfa hay and other roughages which are "off color" or slightly inferior in other respects and would not otherwise find a market. The manufacture of these feeds also offers a market for large quantities of molasses which would be rather hard to market in any other way. If the content is plainly marked upon the bags and if adequate laws are enacted for marking and branding such materials their use is to be recommended unless other feed can be purchased more economically.

The analyses of some of the more common oil meals are given in the following table, which was compiled from data in Henry and Morrison's "Feeds and Feeding":

Analyses of oil meals.

Feed.	Dry matter.	Protein.	Carbohydrates.		Fat.
			Fiber.	Nitrogen-free extract.	
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per ct.*
Cottonseed meal (choice)	92.5	44.1	8.1	25.0	9.1
Linseed meal (old process)	90.9	33.9	8.4	35.7	7.5
Soy-bean meal	88.2	41.4	5.3	28.7	7.4
Coconut meal (low in fat)	90.4	20.9	11.2	45.3	8.1
Palm-nut cake	89.6	16.8	24.0	35.0	9.5
Peanut cake (hulled nuts)	89.3	47.6	5.1	28.7	8.0
Sesame cake	90.2	37.5	6.3	21.7	14.6

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It will be noticed from this table that the feeds highest in protein are peanut cake and cottonseed meal. Those highest in carbohydrates are palm-nut cake, copra or coconut cake, and linseed meal. In fat sesame cake stands first.

In most feeding operations some one of these oil meals or cakes is essential, because they supply protein not only in its needed form but with greater economy than it can be obtained from other sources. In view of the fact that we are feeding but a small portion of our production of these materials, effort should be made to create a more general demand for them.

Cottonseed meal is a good fertilizer, but as it can be fed to beef or dairy cattle with a loss of but one-fourth of its fertilizing elements it is a most economical feed to use. A full discussion of the feeding of cottonseed meal to beef cattle is given in Farmers' Bulletin 655, "Cottonseed Meal for Feeding Beef Cattle."

In the United States but 24 pounds of cottonseed meal is fed per head of cattle, while in some of the European countries from 250 to 500 pounds are fed to each cow annually. This shows the possibility of increasing the amount fed in this country. The results of such additional feeding would be increased production of beef and dairy products to be used for home consumption and export. At the same time the productive power of our soils would be greatly improved.

MISCELLANEOUS ROUGHAGES AND GRAZING CROPS.[1]

WINTER WHEAT AND OATS.

In some sections of the United States it is a common practice to graze cattle on winter wheat and winter oats during the winter or spring months. It is true that oftimes such pasture is available only during short periods of time, but with careful management the length of time that such pasture can be grazed can be increased. The chief obstacle in the way of pasturing these winter crops is the damage done to the crop by the cattle during wet weather. Proper tiling and draining of the soil will lengthen the period during which these crops may be pastured. Winter wheat and winter oats are very seldom seriously injured by grazing when the soil is not too wet. In fact, during winters that are favorable to maximum growth of these crops grazing is an actual benefit.

Cattle thrive on such crops, and often no other food is necessary while they are on such pasture. These crops are especially good for growing calves and young stock, but in addition some grain and a little dry roughage, as hay or stover, should be fed. The season in which winter wheat and oats may be pastured depends upon the

[1] This report does not attempt to discuss all of the different crops which may be grown in certain sections, but only such crops as are comparatively new or other crops which can be more efficiently used.

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section of the country and climatic conditions. In the extreme South such pasturage often lasts through the entire winter, and some feeders do not cut the grain but pasture it entirely, while in other sections of the country these crops may be grazed for less than a month.

CACTUS.

The feeding of cactus or prickly pear is purely a local matter. Its growth is confined to the coastal region of Texas, Louisiana, and Florida, the southern half of California, and the southern portion of Arizona and New Mexico.

In those sections the wild cactus, prickly pear, or tuna has for years been used very successfully in the wintering of stock. The tuna is covered with very sharp thorns and cattle will not eat it freely unless the thorns are singed off. Gasoline torches are used for singeing the spines. Where cactus is relatively thick one man can singe the spines from enough prickly pear to feed 400 to 500 beef cattle a day.

A great many cattlemen are of the opinion that spineless prickly pear will never be grown successfully under range conditions, as they believe the cattle would eat it too close and it would be destroyed.

Cattle will winter in fairly good condition on prickly pear and a small allowance of cottonseed cake daily. In some sections on the larger ranches cottonseed meal and cottonseed hulls are mixed together in immense self-feeders, which often hold as much as a carload of this material. The cattle eat at will from these feeders and have in addition all the "singed" prickly pear they will consume.

To date it has not been determined whether prickly pear can be grown economically under cultivation. There are other forage crops which when cultivated may be more satisfactory than prickly pear in sections where cultivation can be practiced. It is not believed that cactus will ever be a great factor in cattle feeding in this country.

SUGAR CANE.

In the extreme southern portions of the United States sugar cane grows very readily, and makes an immense tonnage per acre. It has been used to a limited extent for cattle feeding. In Cuba and Porto Rico the thousands of work oxen are fed very largely upon sugar cane. The green stalks are cut into short pieces with a machete and the oxen eat the entire stalk and leaves. The horses of those countries are fed considerable sugar cane and a small amount of corn. During the dry season when pastures are very poor the cattle are frequently fed sugar cane to carry them through the dry period.

If the entire sugar-cane plant will make silage which will compare favorably in feeding value with sorghum silage, then cane should

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in the future be largely used as a silage crop because of the enormous yield per acre.

Japanese sugar cane is a smaller variety of sugar cane which can be planted much thicker. It has been used to a considerable extent for silage in Florida, and very satisfactory reports have been received from feeders who have used it.

FETERITA.

Feterita is an early-maturing drought-resistant sorghum and has special value from an economical standpoint in the South and Southwest. The average growing period of feterita is about 105 days. The stalks are from 4 to 7 feet high, and are tender and palatable. They sucker and branch freely under favorable conditions.

The plant will yield from 10 to 40 bushels of grain per acre. The Texas substation at Lubbock, Tex., has obtained a yield of 57.7 bushels per acre. In more recent tests feterita has shown a somewhat smaller yield. Two varieties of feterita at the Lubbock station during the summer of 1915 showed an average yield of 46.4 bushels. The following yields were obtained for standard, dwarf, and white milo, respectively: 61.4, 68.4, and 61.8 bushels. The yield of fodder will run from 1 to 2½ tons per acre. An unofficial statement is to the effect that 10 bushels of the grain of feterita are equal in value to about 9 bushels of corn.

The fodder of feterita is somewhat better than that of milo, but both kafir and sorghum furnish fodder of somewhat better quality than either of these materials. All sources of information seem to indicate that the feeding value of these four feeds is almost the same.

SUDAN GRASS.

The growing of Sudan grass in the last few years has become an industry of no small importance. Seed growers have exploited the growing of this crop very extensively and farmers are usually well satisfied with the results which they have obtained. Sudan grass gives a very heavy yield of fodder, and this, together with its drought-resisting qualities, makes it a very valuable forage in sections where it will grow.

Favorable reports concerning this crop have come from all sections of the country, from central South Dakota to Texas, and eastward to the Atlantic seaboard, showing that it has an extremely wide range as a useful forage crop. Yields of from 2 to 5 tons of hay per acre are usually secured when the grass is planted in rows and cultivated. It very closely resembles Johnson grass, but does not have the creeping rootstocks, so does not become a pest. When cultivated it sometimes attains a height of 8 to 10 feet, and when sown

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broadcast it grows from 4 to 5 feet high. Experiments indicate that it has a feeding value about equal to that of the sorghums and timothy hay.[1]

TEOSINTE.

Teosinte produces a heavier yield of fodder than any other crop grown in this country. Georgia has obtained a yield of 38,000 pounds, Mississippi 44,000 pounds, and Louisiana more than 50 tons per acre. To grow this crop successfully long seasons, hot weather, and abundant moisture are necessary. The stalks grow from 6 to 12 feet high. The stalks are tender and the leaves are abundant. If allowed to stand until September or October the fodder makes good silage. In Louisiana this crop has sold for $2 per ton while standing in the field. The experiment stations which have grown teosinte recommend it highly as a cattle feed in either the fodder or silage form. It is palatable and nutritious, but because of its rank growth some trouble is experienced in curing it.

OTHER FORAGE CROPS.

Other crops which have economic value and should be grown more extensively in certain sections are velvet bean, kudzu vine, sweet clover, cassava, beggar weed, and rape. Other farm crops might be mentioned, but those named are of peculiar economic value in sections where they are grown.

ROOT CROPS.

No good English or Scotch feeder would think of keeping a breeding herd without mangels, beets, turnips, or some other such feed. The use of root crops in the feeding of cattle involves somewhat more labor than if they are fed other material, but at the same time where such crops have been used feeders have found it profitable. The growing and feeding of root crops is to be advised only in specific cases in this country, as the high cost of labor sometimes prohibits the economical production of such crops. Where labor is relatively cheap and intensive methods are practiced, roots may be produced and fed to advantage.

Root crops are especially valuable for feeding young stock and breeding cattle and cattle which are being fitted for show purposes. As they are very succulent and palatable, they are excellent feed for cows which are suckling calves. As long as large farms exist and labor is expensive it is doubtful if root crops will become popular, as silage crops can be raised and harvested more cheaply.

[1] See Farmers' Bulletin 605, Sudan Grass as a Forage Crop; also Kansas Industrialist, May 1, 1915.

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ANIMAL BY-PRODUCTS.

The by-products of the packing industry in this country offer an abundant source of highly concentrated and very nutritious feed. The use of these materials, however, is limited mostly to swine and poultry, and for fertilizing purposes. In small amounts they have value as cattle feed, but because of the slightly rancid taste of such feeds cattle do not relish them as highly as they do the concentrates of vegetable origin. Chief among the animal by-products are tankage, blood meal, and fish meal. Large amounts of all these materials are being used for fertilizing purposes. It is probable that fish meal may be used quite extensively at some future time for supplementing a corn ration for hogs, but it will probably not gain favor rapidly as a catle feed.

BREWERS' AND DISTILLERS' BY-PRODUCTS.

Among the by-products of breweries and distilleries are dried brewers' grains, brewers' slop, distillers' grains, both slop and dried, and malt sprouts. All of these materials are of great economic value in cattle feeding, but their use, with the exception of the dried products, is limited to places near the point of manufacture. Almost the entire product of these plants is being used in this country and as a rule no class of feeders pays more attention to the details of the feeding operation and the profits arising therefrom than feeders who are using these materials. Large numbers of cattle are finished annually at distilleries and breweries. Up to within recent years the cattle were finished at these plants for export trade, but now they are used in the home consumption.

Other concentrates as well as more roughages should be fed with the slop. Feeders of these materials seldom have used enough roughages in the finishing of such cattle. More attention should be given to the sanitary condition of pens where slop is fed. If such places were kept cleaner, more bedding used, and more liberty given the cattle, the feeding would probably show greater profits.

CANNING FACTORY REFUSE.

In certain districts, where crops are grown for canning, by-products are available which are very valuable sources of green feed. These feeds as a general rule should either be fed fresh or put into the silo. Among the materials of this kind available are pea vines, corn husks, cobs, etc.

Some companies engaged in the canning of these materials have their own silos and buy and fatten cattle on the refuse material from their factories. Others haul the material into immense piles and dump it. The teams hauling the material tramp it well. The feed

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keeps well on the inside of the stack and is in fact silage; but enormous losses occur when the feed is handled in this manner. The refuse from canning factories is used to a considerable extent at the present time, and the greatest waste is in the method of storing it. If it were all stored in silos the waste would be less.

BEET PULP.

In Colorado, Utah, Montana, California, Michigan, and Nebraska large quantities of beet pulp are produced at sugar refineries. In those States experimental work has been done with this feed and it has given very satisfactory results. Some of the pulp is hauled in the fresh state to the farm and ensiled, but most of it is piled in immense inclosures having plank floors so that some of the water can drain out. The pulp, when fresh, resembles boiled turnips, but the outer part of the pile soon molds and forms an air-tight cover for the remainder, in this manner aiding in the preservation of the pulp. It is taken daily from the silo or inclosure, as the case may be, and placed in the feed bunks for the cattle. Considerable care must be used to see that the feed bunks are cleaned after each feeding and that the pulp is supplied in the fresh state. It is advisable to feed good first-cutting alfalfa hay with the pulp, to overcome its laxative effects. Steers on hay and pulp will not finish out as highly as cattle that are on a ration of hay and grain, but the feeding is often very profitable.

Much of the pulp now produced is dried and sold on the market for feeding purposes as dried beet pulp. It is extensively used as a feed for dairy cows. Most of the beet pulp produced in this country is used economically, and there is no prospect of increasing the roughage supply to any extent by better methods of utilizing this by-product.

SUGAR-CANE TOPS AND BAGASSE.

Some experiments are being conducted in Louisiana to determine whether sugar-cane tops which are not used in the manufacture of sugar can be used advantageously for silage, and to determine whether bagasse is of any value as a cattle feed. The tests that have been made indicate that cane tops make a fairly satisfactory silage. As there are thousands of acres in cane, much of which will make 50 tons or more of cane to the acre, there has been an enormous waste in the tops and leaves, which have heretofore been burned. If the tops prove really satisfactory for silage, it will mean that the large sugar planters of the South can handle beef cattle as a side issue. The cattle can be grazed during the summer and wintered on cane-top silage and cottonseed meal, both of which will be relatively cheap in price.

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If the bagasse proves to have much feeding value, large numbers of cattle may be fed near the sugar mills. Such cattle would probably be fed on bagasse, cane-top silage, blackstrap molasses, and cottonseed meal. The bagasse contains such a high percentage of crude fiber that it may prove unsatisfactory as a feed. At the present time it is used as fuel at the sugar mills. Then, too, the bagasse may prove to be too constipating unless it is finely cut up and fed with some laxative feed. The use of molasses should aid in correcting that tendency.

BLACKSTRAP MOLASSES.

Blackstrap molasses is a by-product of the sugar industry that has gained in favor rapidly among cattle feeders in the last few years. All of the blackstrap which is produced in the United States is sold at reasonable prices. There is little waste of this product. Molasses is not only fed by farmers extensively, but nearly every commercial mixed stock feed put upon the market contains some molasses.

Attention is called to the production of enormous quantities of blackstrap molasses in Cuba and Porto Rico. Some of the manufacturers of mixed feeds in this country are importing the molasses they use from Cuba, as it can be imported much more cheaply than it can be purchased in the United States. Blackstrap in the United States costs from 9 to 16 cents per gallon. One dealer imported 5,000,000 gallons into this country from Cuba for a total cost of about 5 cents a gallon.

Some of the sugar factories in Cuba burn the molasses or dispose of much of it in a very uneconomical manner, although a small amount of it is used for feed. This is one feed which can and should be imported into this country in large quantities so long as the price remains so much lower than in the United States.

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Report No. 113.

[Contribution from the Office of Markets and Rural Organization,
Charles J. Brand, Chief.]

MEAT SITUATION IN THE UNITED STATES.

PART V.

METHODS AND COST OF MARKETING LIVE STOCK AND MEATS.

BY

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EXPLANATORY STATEMENT.

In the winter of 1913–14 a committee of well-known investigators, familiar with agricultural conditions, was appointed by the Secretary of Agriculture to consider the economics of the meat situation. This committee was composed of Dr. B. T. Galloway, Assistant Secretary of Agriculture, as chairman; Dr. H. J. Waters, president of the Kansas State Agricultural College; Prof. C. F. Curtiss, dean of the Iowa State College of Agriculture and Mechanic Arts and director of the Iowa Agricultural Experiment Station; H. W. Mumford, professor of animal husbandry, University of Illinois; Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, United States Department of Agriculture; and Dr. T. N. Carver, Director of the Rural Organization Service, United States Department of Agriculture. Mr. Leon M. Estabrook, Chief of the Bureau of Crop Estimates, was made secretary of the committee.

No formal report was prepared by this committee, but, at the suggestion of the committee, independent inquiries dealing with several phases of the meat situation were undertaken by specialists of the United States Department of Agriculture. The results of these inquiries have been crystallized by the department in a series of five reports, under the general title of the "Meat Situation in the United States," each report complete within itself and bearing a separate number in the series of reports of the Office of the Secretary, as follows:

Part I. Statistics of Live Stock, Meat Production and Consumption, Prices, and International Trade for Many Countries. By George K. Holmes, Bureau of Crop Estimates. (Report No. 109.)

Part II. Live Stock Production in the Eleven Far Western Range States. By Will C. Barnes and James T. Jardine, Branch of Grazing, Forest Service. (Report No. 110.)

Part III. Methods and Cost of Growing Beef Cattle in the Corn Belt States. By J. S. Cotton and Morton O. Cooper, Office of Farm Management, and W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 111.)

Part IV. Utilization and Efficiency of Available American Feed Stuffs. By W. F. Ward and S. H. Ray, Animal Husbandry Division, Bureau of Animal Industry. (Report No. 112.)

Part V. Methods and Cost of Marketing Live Stock and Meats. By Louis D. Hall, F. M. Simpson, and S. W. Doty, Office of Markets and Rural Organization. (Report No. 113.)

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METHODS AND COST OF MARKETING LIVE STOCK AND MEATS.

SUMMARY.

Three general methods of marketing are open to producers of meat animals: First, through the large public stock yards and packing centers; second, by means of local butchers and packers; and third, in the form of farm-prepared meats.

Investigations conducted by the Office of Markets and Rural Organization indicate that in the United States the practice of shipping live stock to centralized markets prevails most generally in the Central States and that the greatest prevalence of local marketing is found in the extreme eastern, western, and southern sections. Estimates show that about one-half of the beef cattle, two-thirds of the hogs, and four-fifths of the sheep and lambs marketed pass through the large central markets; one-third of the beef cattle, one-twelfth of the hogs, and one-eighth of the sheep and lambs are sold for local slaughter; one-tenth of the beef cattle, one-third of the hogs, and one-twentieth of the sheep and lambs are slaughtered on farms and ranges.

Data obtained concerning the time of buying stockers and feeders and the selling of finished animals show that these operations are confined too generally to a few months of the year. Although movements of live stock are subject in a large degree to the same natural conditions that fix the limits of the grazing season and the availability of feed stuffs, it is manifest that stock-feeding operations are susceptible of better adjustment to market conditions. Such adjustments would exert a marked influence toward a more even distribution of the supply.

In the United States relatively more sheep are shipped in carload lots by owners than any other class of live stock; cattle follow second, hogs third, and calves fourth. More hogs are marketed by local dealer-shippers than other classes of live stock, and calves, cattle, and sheep follow in the order named. The average margin received by the local dealer-shipper varies inversely as the volume of business in the different States.

Seven hundred and fifty organizations in 15 States are marketing cattle in a cooperative way. Four hundred and thirty of these organizations are primarily live-stock shipping associations. Two hundred and fifteen of the cooperative live-stock shipping associations are located in the State of Minnesota. Cooperative live-stock shipping associations bring greater net returns to the farmer because of the reduction of marketing expenses and the realization of actual market prices. These associations also have educational features which are of importance to any community having live stock to market in small lots.

Live stock is sold direct to packers in California more generally than in any other State or section. This practice is most characteristic of the western group of States in general. Direct marketing will remain an important factor in those parts of the country remote from centralized markets. The present tendency and effect of direct country buying in the Middle West, particularly as regards hogs marketed from the corn belt, is a matter of much discussion.

Average freight rates on live stock for the years 1911–1913 were 10 cents per hundredweight for eastern or official territory, 11.9 cents for southern territory, and 14.9 cents for western territory. Replies to inquiries show that train service is satisfactory in a majority of cases. The total claims for live-stock loss and damage in transit on 27 railroads amounted to $1,245,477.81 during the fiscal year 1913–14. Railroads show wide variation in efficiency in handling live stock, the claims paid being 19 per cent of the revenue in one case and less than 0.5 per cent in another.

The largest single factor in the marketing of meat animals in the United States is the system of centralized live-stock markets. These markets not only are a medium through which live stock is sold for slaughter, but a large proportion of stocker and feeder cattle also passes through them. The terminal charge at most centralized markets is $2 per car. Yardage is 25 cents a head on cattle, 10 cents on calves, 8 cents on hogs, and 5 cents on sheep at a majority of the markets. Commission charges are 60 cents per head on cattle, 25 cents on calves, 20 cents on hogs, and 10 cents on sheep at most markets.

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Wholesale slaughtering and meat packing constitute the chief outlet for market stock suitable for slaughter. The most extensive development of meat packing is found at Chicago and Missouri River points. The total value of the products of wholesale slaughtering and meat packing in the United States was $1,651,765,424. The number of establishments engaged in the business was 1,279 in 1914. Concentration of ownership is one of the striking features of the industry.

The Bureau of the Census reported that in 1909 40 per cent of the cattle, 61 per cent of the calves, 17 per cent of the sheep and lambs, and 36 per cent of the hogs were slaughtered in retail slaughterhouses and on farms.

Public abattoirs have been established in 22 cities in 13 States. Seven of these establishments are owned and operated by the city, while the remaining 15 are owned privately and operated under city inspection.

Local packing houses are distributed mainly in the more important live-stock producing States and in sections remote from live stock markets and packing-house centers. Cooperative packing houses recently have been promoted in a number of communities in six States. Only two of these establishments have been built and operated as yet.

The marketing of farm-prepared meats, although comparatively limited in relation to the industry as a whole, is practiced more or less in almost all parts of the country. The curing of meat at ice plants is a recent development in local marketing in the South. Surplus hogs in a community may be marketed at these plants and the plants obtain additional revenue by the utilization of their equipment and storage rooms in the dull season. The parcel-post division of one of the large cities of the Middle West handled, during 1915, 5,316 packages of poultry, 4,893 packages of fresh meats, 4,116 packages of cured meats, and 262 packages of lard. This method of marketing meat is limited in comparison with the other methods, yet the amount thus marketed is considerable as a sum total.

The correlation between average live-stock and meat prices is closer than generally is understood. Daily fluctuations in live-stock quotations frequently are large and abrupt and constitute one of the most adverse features of live-stock market conditions. Meat prices from day to day tend to follow general averages of previous years more closely.

The results of investigations of the marketing of nine lots of cattle through centralized markets show that from 54 to 85 per cent of the gross returns was received by the stockmen, from 2 to 5 per cent was absorbed by marketing expenses, 2 to 9 per cent was received gross by packers, and 8 to 33 per cent by retailers.

The retailers' gross margin, as shown from the results of marketing locally five shipments of cattle, varied from 15 to 38 per cent of the gross returns. From 62 to 84 per cent of the gross returns on these cattle was received by the owner.

INTRODUCTION.

In this report only those phases of the marketing of live stock and meats which bear most directly upon the economic aspects of the meat situation are considered. Not only would a comprehensive treatise, covering the numerous technical matters involved, be inappropriate to the series of reports of which this is one, but available data relative to some of the important problems of marketing and distribution are so fragmentary as to make a detailed or conclusive analysis of such problems impracticable at this time.

The report, therefore, is limited to the setting forth of the results of investigations which recently have been conducted in the Office of Markets and Rural Organization, supplemented by such data from other sources as have been deemed pertinent. The general objects sought in presenting the subject are to define and differentiate the principal methods by which live stock is marketed in the United States; to show the present relative importance of the several methods in the country at large and in the different States and agricultural regions; to analyze the more prominent items of cost involved in the various stages of the marketing of live stock and distribution of meats, with special reference to the reduction of cost through improvements in marketing methods and facilities; and to compare the margins or relative returns realized by each of the important

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classes of interests that participate in the movement of meat products from producers to consumers. The kinds of meat animals considered in the report are cattle, hogs, and sheep.

METHODS OF INVESTIGATION.

The sources of the data of which this report is a summary consist of schedules of questions which were sent to extensive lists of persons and organizations identified with different phases of live-stock marketing and meat distribution; detailed reports relative to typical lots of animals which were traced through the various steps of marketing and distribution from the producer to the consumer; and other investigations conducted in person or by correspondence to supplement and confirm certain phases of the information otherwise obtained. A public hearing and conference relative to the marketing of live stock, the distribution of meats, and related matters, which was held at Chicago November 15 and 16, 1915, by direction of the Secretary of Agriculture, and conducted by the Chief of the Office of Markets and Rural Organization, in which many of the most prominent representatives of interests engaged in all departments of marketing and distribution participated, also has provided information concerning some of the topics treated herein.[1]

Acknowledgment is due the Bureau of Crop Estimates of the United States Department of Agriculture for the distribution of schedules to its special live stock and price reporters, and assistance in the compilation of statistics obtained by that means; to the Bureau of Animal Industry for assistance in obtaining data on the slaughter and distribution of selected lots of cattle which were handled at packing plants under Federal inspection; to numerous interests and individuals who furnished information relative to animals and meats involved in the investigations; and to others who responded to inquiries concerning various phases of the subject.[2]

OUTLINE OF THE VARIOUS METHODS OF MARKETING.

Three general methods of marketing are open to producers of meat animals; namely, through the large public stock yards and packing centers; by means of local butchers and packers; and the trade in farm-prepared meats.

Shipments sent to large live stock markets and packing centers are consigned either in carload or in trainload lots to commission firms or packers by individual farmers and stockmen who produce and fatten the animals; they may be consigned similarly by local stock dealers or professional shippers who buy them from farmers and stockmen and act as middlemen between them and the commission firms or packers; they may be consigned by cooperative live stock shipping associations which are organized for the purpose of making distant markets accessible to farmers who have stock to sell in less than carload lots; or they may be sold at local shipping points, either by farmers and stockmen or through regular dealers, to agents

[1] See Sixty-fourth Congress, first session, House of Representatives, Document No. 855. Proceedings of the Conference Relative to the Marketing of Live Stock, Distribution of Meats and Related Matters. 1916.

[2] Mr. Gilbert Gusler compiled most of the statistics from which the plates in the section "Live Stock and Meat Prices Based on Market Quotations," were made, and Mr. Wallace V. Smith has assisted materially in connection with the preparation of the entire manuscript for publication.

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of the packers who ship them to the packing houses which they represent.

Animals which are sold on foot locally other than for shipment to central markets and packing points may be marketed either through local butchers for retail market trade or to local packers who conduct a wholesale slaughtering and meat-packing business. The sale of animals for shipment to feeding points will not be considered specifically in this report, as such disposal is related only indirectly to their final marketing and distribution.

Farm-slaughtered animals, other than those used for home meat supply, generally are marketed either in the carcass or in the form of farm-cured meats and meat products. Dressed carcasses of this kind usually are sold to local retail meat markets or consigned to produce commission houses or special customers. Farm-cured meats, consisting chiefly of hams and bacon, and meat products such as sausage and lard are sold principally to local grocers and meat markets, and to a small extent are delivered directly to consumers, including those sent by parcel post and express.

RELATIVE EXTENT AND IMPORTANCE OF DIFFERENT MARKETING METHODS.

To determine approximately the extent to which each of the principal methods of marketing is practiced throughout the United States, and to secure comprehensive information relative to various problems involved in the subject, a schedule of questions was sent to the special live stock and price reporters of the Bureau of Crop Estimates, including 11,110 correspondents, located in every county in the United States. These correspondents as a class are in a position to know the agricultural conditions of their localities and are experienced in furnishing reports and estimates relative thereto. Considering the minor position of meat production in many places and the limited degree of attention which farmers and stockmen in most parts of the country have given to live stock marketing conditions, a comparatively small percentage of replies to the inquiry was anticipated. The total of 2,072 schedules returned, equal to 18.6 per cent of all correspondents addressed, constitutes a creditable proportion of responses from the sections in which live stock production is a prominent industry, and relatively satisfactory returns from other parts of the country. The replies have been tabulated and summarized by subjects and will be presented in connection with the respective sections of the report to which they pertain.

Tables 1 and 2 reveal marked variations in the relative importance of the methods of marketing which prevail in different States, but it should be noted that in some instances such variations are likely to be magnified by reason of the small number of estimates on which the averages are based. With some such exceptions, however, particularly as to certain of the smaller States where live stock production is of minor importance, the figures are believed to be at least approximately representative of the extent to which each of the methods of marketing is followed in the various States.

The average estimated percentages of cattle, veal calves, hogs, and sheep marketed in each manner are presented by States in Table 1.

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TABLE 1.—*Relative importance of the various methods of marketing live stock, by States.*

[Averages of estimates by special live stock and price reporters, expressed as percentages.]

CATTLE.

State.	Number of estimates.	Shipped in carload lots by owners.	Shipped by cooperative shipping associations.	Sold to regular local dealers for shipment to market.	Sold to local packers.	Sold to packers' agents for shipment.	Sold for shipment to feeding points.	Sold to local butchers for retail-market trade.	Farm-slaughtered and sold in the carcass.	Farm-cured meats, sausage, etc.	Other methods.
Alabama	10	5.5	.....	42.0	.....	.....	3.5	34.0	5.0	10.0	.....
Arizona	5	10.0	.....	29.0	.....	.....	56.0	4.0	1.0	.....	.....
Arkansas	41	8.2	4.6	53.2	1.7	.....	9.5	16.9	4.7	1.1	0.1
California	17	14.5	4.7	12.2	7.4	25.0	1.6	32.2	2.4	.....	.....
Colorado	18	48.8	1.1	28.6	.8	.....	10.6	5.6	2.0	2.1	.4
Connecticut	6	.....	.....	14.1	8.4	.....	.....	65.8	11.7	.....	.....
Delaware	2	.....	.....	2.5	.....	.....	.....	87.5	.....	5.0	5.0
Florida	22	4.7	.....	23.0	5.2	2.3	2.2	51.6	11.0	.....	.....
Georgia	30	4.8	.....	23.8	3.9	2.7	2.9	51.7	6.7	1.9	1.6
Idaho	17	26.2	5.0	25.0	15.3	8.2	5.5	10.3	4.2	.3	.....
Illinois	100	33.4	1.3	54.2	1.3	.7	1.4	6.6	.6	.4	.1
Indiana	92	14.8	5.3	61.8	4.4	.5	1.0	9.0	1.0	1.3	.9
Iowa	95	43.9	5.3	39.7	1.8	1.6	3.4	3.5	.5	.3	.....
Kansas	124	42.7	4.1	42.8	.9	.3	3.2	3.9	1.1	.6	.4
Kentucky	66	6.2	1.2	69.8	2.5	1.1	8.8	7.8	1.6	.3	.7
Louisiana	8	18.1	.....	20.0	.....	.3	10.6	46.8	3.9	.3	.....
Maine	19	.....	.....	31.3	2.8	.5	.....	52.2	12.3	.4	.5
Maryland	11	2.9	.....	58.1	.....	.....	.....	34.3	2.0	.....	2.7
Massachusetts	17	.....	.....	38.7	.8	6.6	.7	42.6	7.4	.3	2.9
Michigan	44	9.3	1.4	54.7	1.4	.5	2.3	23.0	6.3	1.1	.....
Minnesota	43	11.4	23.5	48.0	1.2	1.2	.9	9.7	2.6	.7	.8
Mississippi	16	3.6	4.7	56.8	.....	.....	3.9	22.0	8.1	.9	.....
Missouri	68	23.0	1.6	60.3	.2	1.1	7.4	3.8	1.8	.3	.5
Montana	6	37.2	.....	15.0	1.3	.....	.3	41.8	3.2	1.2	.....
Nebraska	112	61.0	6.9	24.9	.1	.5	2.1	3.3	.5	.4	.3
Nevada	8	6.3	.....	26.0	16.9	14.4	8.1	20.0	4.9	.....	3.4
New Hampshire	5	.....	.....	54.0	.....	.....	.....	33.0	13.0	.....	.....
New Jersey	4	.....	.....	38.8	.....	.....	.....	56.2	5.0	.....	.....
New Mexico	9	21.1	.....	21.1	5.7	.....	47.6	2.4	1.0	1.1	.....
New York	30	2.6	.....	62.3	1.0	.5	1.5	24.1	7.3	.5	.2
North Carolina	26	6.9	.....	28.5	.....	.4	9.6	41.7	11.7	1.2	.....
North Dakota	52	24.8	3.0	48.6	.3	2.0	1.5	15.8	3.0	1.0	.....
Ohio	67	5.6	1.8	62.9	4.2	1.4	1.5	18.5	2.8	1.2	.1
Oklahoma	34	27.7	3.1	54.5	.1	.1	2.4	9.7	1.0	1.4	.....
Oregon	10	17.5	.....	23.5	5.0	5.5	9.7	26.8	9.0	1.0	1.0
Pennsylvania	48	1.2	.1	34.3	4.1	4.1	.....	45.5	6.7	2.2	1.8
Rhode Island	4	.....	.....	28.8	.....	.....	.....	65.0	6.2	.....	.....
South Carolina	12	7.5	.....	17.5	.....	.4	1.7	65.0	7.5	.....	.4
South Dakota	46	26.4	9.4	50.0	.8	.8	6.4	5.1	.5	.4	.2
Tennessee	32	5.1	1.7	59.2	.5	.8	12.1	13.3	3.1	3.3	.9
Texas	52	39.0	.....	31.8	.5	.5	12.9	12.5	1.4	1.0	.4
Utah	12	15.5	.....	32.5	2.5	11.7	15.4	20.7	1.7	.....	.....
Vermont	8	.....	.....	70.0	.....	.....	1.9	22.4	3.6	1.8	.3
Virginia	30	4.8	.3	50.1	.....	4.7	17.8	19.9	2.0	.1	.3
Washington	23	5.7	2.1	14.2	5.9	4.6	.5	59.2	7.8	.....	.....
West Virginia	35	1.4	2.9	57.9	.....	.4	7.8	23.8	4.5	.9	.4
Wisconsin	82	7.9	8.9	61.2	2.5	.....	1.3	13.2	3.2	1.3	.5
Wyoming	11	78.5	.....	2.3	.....	.....	1.7	6.3	10.2	.1	.9

VEAL CALVES.

Alabama	4	.....	.....	33.7	.....	.....	.....	66.3	.....	.....	.....
Arizona	1	.....	.....	.....	.....	.....	.....	100.0	.....	.....	.....
Arkansas	21	9.1	5.6	42.8	0.5	.....	3.0	27.9	3.2	.....	7.9
California	15	1.7	5.3	12.0	2.0	11.0	9.0	36.3	22.7	.....	.....
Colorado	8	1.2	.....	40.0	6.3	.....	.6	38.1	13.8	.....	.....
Connecticut	6	.....	.....	29.1	8.3	.....	.....	59.2	3.4	.....	.....
Delaware	3	.....	.....	38.3	.....	.....	.....	35.0	.....	.....	26.7
Florida	8	.....	.....	1.2	.....	.....	.....	88.8	10.0	.....	.....
Georgia	12	.....	.....	11.3	2.9	.....	1.3	64.6	19.5	.....	.4
Idaho	6	.....	.....	17.5	16.7	.....	.....	64.0	1.8	.....	.....
Illinois	72	12.5	1.0	61.8	2.5	.5	1.3	14.7	5.4	.....	.3
Indiana	79	8.5	5.9	63.5	3.5	.3	2.2	9.6	4.7	.....	1.8
Iowa	51	10.6	6.2	44.2	4.2	.7	.5	31.2	2.3	.....	.1
Kansas	70	19.5	3.5	63.3	2.1	.1	1.6	8.9	.9	.....	.1
Kentucky	40	11.9	1.3	70.0	3.9	.9	.5	9.5	.2	.....	1.8
Louisiana	5	23.0	.....	36.0	2.0	.4	.....	34.6	4.0	.....	.....
Maine	18	.....	.....	35.6	3.1	1.1	.....	40.8	19.4	.....	.....
Maryland	11	1.8	.....	56.8	.....	.....	.....	37.3	.5	.....	3.6

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TABLE 1.—*Relative importance of the various methods of marketing live stock, by States*—Continued.

VEAL CALVES—Continued.

State.	Number of estimates.	Shipped in carload lots by owners.	Shipped by cooperative shipping associations.	Sold to regular local dealers for shipment to market.	Sold to local packers.	Sold to packers' agents for shipment.	Sold for shipment to feeding points.	Sold to local butchers for retail-market trade.	Farm-slaughtered and sold in the carcass.	Farm-cured meats, sausage, etc.	Other methods.
Massachusetts	17	.....	.....	39.3	.....	.....	.....	45.1	15.6	.....	.....
Michigan	36	2.1	.....	57.1	.8	.3	1.7	26.5	11.5	.....	.....
Minnesota	35	5.7	14.3	37.8	.6	.1	.....	35.5	4.9	.....	1.1
Mississippi	6	.....	.....	46.7	.....	.....	.....	50.8	2.5	.....	.....
Missouri	44	6.8	2.4	78.1	.6	.5	1.3	7.3	1.5	.....	1.5
Montana	3	.....	.....	.....	33.4	.....	.....	25.0	33.3	.....	8.3
Nebraska	54	39.4	13.0	32.8	.2	.....	.6	11.2	1.1	.....	1.7
Nevada	6	.8	.....	13.3	10.8	3.3	.....	51.8	18.3	.....	1.7
New Hampshire	3	.....	.....	60.0	.....	.....	.....	31.0	9.0	.....	.....
New Jersey	5	.....	.....	23.0	.....	.....	.....	66.0	11.0	.....	.....
New Mexico	4	2.4	.....	.....	.....	.....	33.8	51.3	12.5	.....	.....
New York	30	.....	.....	62.9	.2	.....	.3	30.8	5.5	.....	.3
North Carolina	11	.....	.....	59.0	.....	.....	1.8	28.3	10.9	.....	.....
North Dakota	27	12.2	.....	27.4	1.9	.4	.....	53.6	4.3	.....	.2
Ohio	60	1.7	1.8	54.6	4.0	.3	.5	30.6	6.4	.....	.1
Oklahoma	18	24.6	6.1	47.2	.....	.....	3.9	15.1	3.1	.....	.....
Oregon	7	5.0	.....	17.9	7.1	4.3	2.9	33.6	27.9	.....	1.3
Pennsylvania	42	.2	.....	32.4	1.9	2.5	.....	55.1	7.3	.....	.6
Rhode Island	4	.....	.....	.....	.....	.....	.....	99.0	1.0	.....	.....
South Carolina	10	12.5	.....	10.6	.....	.....	1.0	69.9	6.0	.....	.....
South Dakota	20	6.8	.5	57.3	2.0	1.9	29.9	1.5	.....	.....	.1
Tennessee	20	2.8	1.0	78.7	.4	.....	.....	13.9	2.2	.....	1.0
Texas	33	34.7	.....	36.5	1.2	.7	12.6	11.7	2.6	.....	.....
Utah	4	.....	.....	.....	25.0	.....	.....	27.5	47.5	.....	.....
Vermont	7	.....	.....	78.6	.....	.....	.....	11.4	9.3	.....	.7
Virginia	22	1.8	.....	43.6	.9	8.1	.2	36.9	8.5	.....	.....
Washington	21	5.0	.....	27.0	1.0	3.6	1.2	44.0	18.2	.....	.....
West Virginia	22	.....	.....	65.0	.....	.....	5.0	28.0	1.6	.....	.4
Wisconsin	26	5.4	10.8	54.2	2.0	.....	.....	13.7	13.8	.....	.1
Wyoming	5	58.0	.....	.....	.....	.....	1.6	40.4	.....	.....	.....

HOGS.

Alabama	8	6.2	.....	14.4	.....	.....	0.6	28.1	13.8	36.9	.....
Arizona	1	.....	.....	.....	.....	.....	.....	100.0	.....	.....	.....
Arkansas	34	9.0	3.2	38.2	1.5	.....	6.5	20.4	6.1	15.1	.....
California	15	7.7	5.3	35.8	6.7	16.0	1.3	24.9	1.3	.7	0.3
Colorado	16	27.6	5.6	35.6	3.4	1.6	.9	15.8	2.9	6.6	.....
Connecticut	6	.....	.....	10.0	8.3	.....	.....	61.7	20.0	.....	.....
Delaware	3	.....	.....	18.3	.....	.....	.....	45.0	16.7	20.0	.....
Florida	20	3.1	.....	8.3	8.0	.8	1.5	38.5	23.0	16.8	.....
Georgia	18	2.3	.....	5.0	2.8	.....	.....	31.7	27.3	30.9	.....
Idaho	18	10.3	14.2	35.7	10.6	14.8	.....	8.2	4.7	1.5	.....
Illinois	99	24.3	.2	65.0	1.9	.6	.7	4.9	.8	1.5	.1
Indiana	88	14.8	5.7	63.2	4.0	.7	.6	6.1	1.4	3.0	.5
Iowa	96	22.4	5.4	60.4	3.8	3.3	.1	2.7	.6	1.1	.2
Kansas	116	22.8	6.0	60.6	1.9	.2	.7	4.2	1.2	2.3	.1
Kentucky	62	5.1	1.0	62.9	3.3	2.0	1.5	6.3	5.5	12.0	.4
Louisiana	5	19.0	.....	2.0	.....	10.0	.4	63.2	5.0	.4	.....
Maine	17	.....	.....	21.5	4.4	2.9	.....	42.7	25.3	3.2	.....
Maryland	10	1.5	.....	37.2	.....	.....	.....	37.3	9.0	7.5	7.5
Massachusetts	17	.....	.....	23.8	3.9	.....	.....	47.6	22.8	1.9	.....
Michigan	42	9.0	.....	58.5	1.0	.3	.8	20.5	7.9	2.0	.....
Minnesota	41	11.1	24.0	48.2	.5	1.6	.....	12.1	1.3	.8	.4
Mississippi	12	7.6	.....	18.4	.....	.....	.1	32.9	9.3	31.7	.....
Missouri	62	15.6	1.9	69.3	.6	.1	2.6	4.6	1.9	3.4	.....
Montana	5	8.0	.....	16.0	2.0	20.0	.....	14.0	32.4	2.6	5.0
Nebraska	109	35.1	13.9	44.6	1.9	.....	.....	3.2	.4	.7	.2
Nevada	7	4.2	.....	23.6	19.3	6.4	.....	33.6	12.9	.....	.....
New Hampshire	2	.....	.....	17.5	.....	.....	.....	37.5	17.5	27.5	.....
New Jersey	5	.....	.....	14.0	.....	.....	.....	62.0	11.0	13.0	.....
New Mexico	6	13.3	.....	3.3	28.7	.....	.....	35.9	10.8	10.0	.....
New York	31	.....	.....	46.4	.3	.....	2.6	29.8	15.3	5.6	.....
North Carolina	22	5.9	.....	14.5	1.8	.....	.....	29.6	24.6	23.6	.....
North Dakota	51	14.8	3.7	58.4	1.5	.4	1.3	14.2	3.4	2.3	.....
Ohio	66	4.9	3.2	68.2	3.6	.7	.3	11.8	4.6	2.7	.....
Oklahoma	34	14.2	3.6	61.7	.1	.3	1.0	12.2	2.4	4.5	.....
Oregon	9	2.2	5.6	28.3	14.4	5.0	.....	21.7	15.0	6.1	1.7
Pennsylvania	43	.5	.1	22.7	6.8	2.2	.5	39.3	16.6	10.4	.9

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TABLE 1.—*Relative importance of the various methods of marketing live stock, by States*—Continued.

HOGS—Continued.

State.	Number of estimates.	Shipped in carload lots by owners.	Shipped by cooperative shipping associations.	Sold to regular local dealers for shipment to market.	Sold to local packers.	Sold to packers' agents for shipment.	Sold for shipment to feeding points.	Sold to local butchers for retail-market trade.	Farm-slaughtered and sold in the carcass.	Farm-cured meats, sausage, etc.	Other methods.
Rhode Island	4	.....	.....	5.0	.....	.....	.....	48.8	25.0	21.2	.....
South Carolina	11	5.6	.....	4.5	.....	.5	.....	60.0	18.4	11.0	.....
South Dakota	45	13.2	8.0	61.7	3.3	1.8	.8	8.0	1.0	2.0	.2
Tennessee	29	5.0	.9	51.8	4.0	.8	1.8	12.8	11.9	10.8	.2
Texas	43	23.4	.....	29.0	.7	1.2	1.4	12.8	7.7	23.7	.1
Utah	9	3.9	.....	20.6	1.0	1.6	2.2	24.5	32.9	13.3	.....
Vermont	7	.....	.....	42.9	.....	.....	.....	18.6	33.6	4.3	.6
Virginia	30	1.7	.....	35.8	2.4	.8	1.8	22.5	12.7	22.3	.....
Washington	22	6.5	1.4	22.4	6.0	3.4	.....	34.8	24.3	1.2	.....
West Virginia	27	.....	.....	52.5	.....	.....	1.0	26.0	10.6	9.6	.3
Wisconsin	31	4.6	10.8	59.0	5.0	.3	.....	12.5	5.7	2.1	.....
Wyoming	9	57.2	.....	6.4	.....	.....	12.6	3.8	18.6	1.4	.....

SHEEP.

Alabama	5	.....	.....	44.0	.....	.....	11.0	21.0	24.0	.....	.....
Arizona	3	27.7	.....	16.6	.....	11.0	44.7	.....	.....	.....	.....
Arkansas	24	10.0	4.4	47.9	1.0	.....	4.3	25.0	7.1	.....	.3
California	31	19.8	6.9	32.2	11.5	17.7	.....	11.8	.1	.....	.....
Colorado	12	65.8	.....	5.8	1.3	.....	23.8	2.6	.7	.....	.....
Connecticut	5	.....	.....	20.0	10.0	.....	.....	54.0	16.0	.....	.....
Delaware	3	.....	.....	18.3	.....	.....	.....	78.4	.....	.....	3.3
Florida	4	.....	.....	.....	22.5	.....	5.0	57.5	15.0	.....	.....
Georgia	10	2.0	.....	28.0	3.0	.....	3.0	51.5	11.5	.....	1.0
Idaho	12	55.5	.....	7.1	17.1	11.7	2.3	5.8	.5	.....	.....
Illinois	70	35.9	.2	55.1	1.6	.6	.1	5.8	.5	.....	.2
Indiana	79	14.8	6.1	71.8	2.0	.3	.2	3.1	.9	.....	.8
Iowa	66	47.5	4.1	40.3	3.5	.5	.3	2.6	1.1	.....	.1
Kansas	46	61.2	.7	30.9	2.8	.1	.8	2.6	.4	.....	.5
Kentucky	61	3.5	1.3	81.1	1.9	.7	2.5	5.0	1.5	.....	2.5
Louisiana	3	31.6	.....	3.3	.....	.7	.....	63.7	.7	.....	.....
Maine	14	.....	.....	22.5	2.8	.....	.....	64.7	10.0	.....	.....
Maryland	8	2.9	.....	57.8	.....	.....	.....	35.5	.....	.....	3.8
Massachusetts	7	.....	.....	12.9	.....	14.3	.....	60.0	12.8	.....	.....
Michigan	40	13.9	.....	58.9	1.3	.....	.7	20.5	4.7	.....	.....
Minnesota	29	24.7	16.1	46.1	.....	.....	.....	11.7	1.2	.....	.2
Mississippi	8	.....	.....	28.9	.....	.....	.....	64.8	6.3	.....	.....
Missouri	51	15.0	3.6	73.7	.5	.....	1.7	3.4	.9	.....	1.2
Montana	5	70.0	.....	8.4	.....	.....	8.0	10.0	3.6	.....	.....
Nebraska	56	79.7	9.1	7.3	.....	.....	.1	3.3	.1	.....	.4
Nevada	7	46.4	.....	19.7	4.3	9.3	4.3	13.6	2.4	.....	.....
New Hampshire	2	.....	.....	37.5	.....	.....	.....	60.0	2.0	.....	.5
New Jersey	5	.....	.....	12.0	.....	.....	.....	63.0	25.0	.....	.....
New Mexico	7	6.4	.....	22.9	.1	.....	67.2	.7	2.7	.....	.....
New York	24	.5	.....	59.7	.....	.....	.....	35.0	4.8	.....	.....
North Carolina	13	8.5	.....	47.3	.....	.....	3.8	26.2	14.2	.....	.....
North Dakota	27	38.1	.9	42.4	.....	.....	.2	15.1	3.3	.....	.....
Ohio	62	6.3	2.3	74.5	1.5	.3	2.5	10.0	2.4	.....	.2
Oklahoma	7	47.9	14.3	34.3	.....	.....	.....	3.5	.....	.....	.....
Oregon	7	.....	7.1	23.6	18.6	11.4	2.9	18.6	16.4	.....	1.4
Pennsylvania	33	.9	.....	42.1	2.0	2.1	.4	47.0	4.9	.....	.6
Rhode Island	3	.....	.....	.....	.....	.....	.....	98.0	2.0	.....	.....
South Carolina	10	2.5	.....	3.4	.....	.....	.....	71.5	22.6	.....	.....
South Dakota	35	42.6	9.7	36.7	.6	.7	6.9	1.9	.5	.....	.4
Tennessee	28	5.7	5.2	68.6	.4	.....	2.3	10.2	5.5	.....	2.1
Texas	18	30.5	.....	36.7	2.8	.5	7.5	11.2	10.8	.....	.....
Utah	8	25.5	.....	25.6	.....	10.6	.6	24.4	12.0	.....	1.3
Vermont	7	.....	.....	76.5	.....	.....	.....	5.7	17.4	.....	.4
Virginia	29	2.1	.....	68.9	.....	.....	5.0	21.0	3.0	.....	.....
Washington	11	6.8	.....	5.0	6.4	3.6	4.6	55.0	18.6	.....	.....
West Virginia	23	.....	.....	84.2	.....	.....	1.0	12.8	2.0	.....	.....
Wisconsin	23	2.4	10.6	60.9	2.7	3.9	.....	16.9	1.6	.....	1.0
Wyoming	12	85.2	.....	4.2	.....	1.7	7.0	1.8	.1	.....	.....

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The limits of this report preclude a detailed discussion of the data pertaining to each State; and so far as characteristic differences in marketing methods follow State lines it must suffice at this point merely to refer the reader to Table 1 for such comparisons as he may wish to make. Moreover, it is considered more pertinent to the present purpose to summarize the data with reference to agricultural and live-stock producing sections. Table 2 represents the results of this phase of the investigation, arranged according to the following sections: New England, the cotton States, corn belt States, and 11 far Western Range States, the latter being subdivided in accordance with the classification adopted by the Forest Service as presented in Part II of this series.[1] Although a number of important States and prominent live-stock producing districts are not included in this grouping, it is possible by reference to Table 1 to ascertain the prevalent methods of marketing in such regions as are omitted from the general subdivisions indicated in Table 2.

TABLE 2.—*Relative importance of the various methods of marketing live stock, by sections.*

[Data from Table 1, for selected groups of States, expressed as percentages.]

CATTLE.

Section.	Number of estimates.	Shipped in carload lots by owners.	Shipped by cooperative shipping associations.	Sold to regular local dealers for shipment to market.	Sold to local packers.	Sold to packers' agents for shipment.	Sold for shipment to feeding points.	Sold to local butchers for retail-market trade.	Farm slaughtered and sold in the carcass.	Farm-cured meats, sausage, etc.	Other methods.
New England States:											
Maine	19	.....	.....	31.3	2.8	0.5	.....	52.2	12.3	0.4	0.5
New Hampshire	5	.....	.....	54.0	.....	.....	.....	33.0	13.0	.....	.....
Vermont	8	.....	.....	70.0	.....	.....	1.9	22.4	3.6	1.8	.3
Massachusetts	17	.....	.....	38.7	.8	6.6	.7	42.6	7.4	.3	2.9
Rhode Island	4	.....	.....	28.8	.....	.....	.....	65.0	6.2	.....	.....
Connecticut	6	.....	.....	14.1	8.4	.....	.....	65.8	11.7	.....	.....
Cotton States:											
North Carolina	26	6.9	.....	28.5	.....	.4	9.6	41.7	11.7	1.2	.....
South Carolina	12	7.5	.....	17.5	.....	.4	1.7	65.0	7.5	.....	.4
Georgia	30	4.8	.....	23.8	3.9	2.7	2.9	51.7	6.7	1.9	1.6
Florida	22	4.7	.....	23.0	5.2	2.3	2.2	51.6	11.0	.....	.....
Tennessee	32	5.1	1.7	59.2	.5	.8	12.1	13.3	3.1	3.3	.9
Alabama	10	5.5	.....	42.0	.....	.....	3.5	34.0	5.0	1.0	.....
Mississippi	16	3.6	4.7	56.8	.....	.....	3.9	22.0	8.1	.9	.....
Arkansas	41	8.2	4.6	53.2	1.7	.....	9.5	16.9	4.7	1.1	.1
Louisiana	8	18.1	.....	20.0	.....	.3	10.6	46.8	3.9	.3	.....
Corn belt States:											
Indiana	92	14.8	5.3	61.8	4.4	.5	1.0	9.0	1.0	1.3	.9
Illinois	100	33.4	1.3	54.2	1.3	.7	1.4	6.6	.6	.4	.1
Iowa	95	43.9	5.3	39.7	1.8	1.6	3.4	3.5	.5	.3	.....
Missouri	68	23.0	1.6	60.3	.2	1.1	7.4	3.8	1.8	.3	.5
Nebraska	112	61.0	6.9	24.9	.1	.5	2.1	3.3	.5	.4	.3
Kansas	124	42.7	4.1	42.8	.9	.3	3.2	3.9	1.1	.6	.4
Western Range States:											
Northwest group—											
Oregon	10	17.5	.....	23.5	5.0	6.5	9.7	26.8	9.0	1.0	1.0
Washington	23	5.7	2.1	14.2	5.9	4.6	.5	59.2	7.8	.....	.....
Montana	6	37.2	.....	15.0	1.3	.....	.3	41.8	3.2	1.2	.....
Idaho	17	26.2	5.0	25.0	15.3	8.2	5.5	10.3	4.2	.3	.....
Utah	12	15.5	.....	32.5	2.5	11.7	15.4	20.7	1.7	.....	.....
Nevada	8	6.3	.....	26.0	16.9	14.4	8.1	20.0	4.9	.....	3.4
Wyoming	11	78.5	.....	2.3	.....	.....	1.7	6.3	10.2	.1	.9
Southwest group—											
Colorado	18	48.8	1.1	28.6	.8	.....	10.6	5.6	2.0	2.1	.4
Arizona	5	10.0	.....	29.0	.....	.....	56.0	4.0	1.0	.....	.....
New Mexico	9	21.1	.....	21.1	5.7	.....	47.6	2.4	1.0	1.1	.....
California	17	14.5	4.7	12.2	7.4	25.0	1.6	32.2	2.4	.....	.....

[1] Barnes, Will C., and Jardine, James T., Meat Situation in the United States, Part II—Live-stock Production in the 11 Far Western Range States. U. S. Dept. of Agriculture, Office of the Secretary, Report 110, 1916.

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TABLE 2.—*Relative importance of the various methods of marketing live stock, by sections*—Continued.

VEAL CALVES.

State.	Number of estimates.	Shipped in carload lots by owners.	Shipped by cooperative shipping associations.	Sold to regular local dealers for shipment to market.	Sold to local packers.	Sold to packers' agents for shipment.	Sold for shipment to feeding points.	Sold to local butchers for retail-market trade.	Farm slaughtered and sold in the carcass.	Farm-cured meats, sausage, etc.	Other methods.
New England States:											
Maine	18	.....	.....	35.6	3.1	1.1	.....	40.8	19.4	.....	.....
New Hampshire	3	.....	.....	60.0	.....	.....	.....	31.0	9.0	.....	.....
Vermont	7	.....	.....	78.6	.....	.....	.....	11.4	9.3	.....	0.7
Massachusetts	17	.....	.....	39.3	.....	.....	.....	45.1	15.6	.....	.....
Rhode Island	4	.....	.....	.....	.....	.....	.....	99.0	1.0	.....	.....
Connecticut	6	.....	.....	29.1	8.3	.....	.....	59.2	3.4	.....	.....
Cotton States:											
North Carolina	11	.....	.....	59.0	.....	.....	1.8	28.3	10.9	.....	.....
South Carolina	10	12.5	.....	10.6	.....	.....	1.0	69.9	6.0	.....	.....
Georgia	12	.....	.....	11.3	2.9	.....	1.3	64.6	19.5	.....	.4
Florida	8	.....	.....	1.2	.....	.....	.....	88.8	10.0	.....	.....
Tennessee	20	2.8	1.0	78.7	.4	.....	.....	13.9	2.2	.....	1.0
Alabama	4	.....	.....	33.7	.....	.....	.....	66.3	.....	.....	.....
Mississippi	6	.....	.....	46.7	.....	.....	.....	50.8	2.5	.....	.....
Arkansas	21	9.1	5.6	42.8	.5	.....	3.0	27.9	3.2	.....	7.9
Louisiana	5	23.0	.....	36.0	2.0	.4	.....	34.6	4.0	.....	.....
Corn belt States:											
Indiana	79	8.5	5.9	63.5	3.5	.3	2.2	9.6	4.7	.....	1.8
Illinois	72	12.5	1.0	61.8	2.5	.5	1.3	14.7	5.4	.....	.3
Iowa	51	10.6	6.2	44.2	4.2	.7	.5	31.2	2.3	.....	.1
Missouri	44	6.8	2.4	78.1	.6	.5	1.3	7.3	1.5	.....	1.5
Nebraska	54	39.4	13.0	32.8	.2	.....	.6	11.2	1.1	.....	1.7
Kansas	70	19.5	3.5	63.3	2.1	.1	1.6	8.9	.9	.....	.1
Western Range States:											
Northwest group—											
Oregon	7	5.0	.....	17.9	7.1	4.3	2.9	33.6	27.9	.....	1.3
Washington	21	5.0	.....	27.0	1.0	3.6	1.2	44.0	18.2	.....	.....
Montana	3	.....	.....	.....	33.4	.....	.....	25.0	33.3	.....	8.3
Idaho	6	.....	.....	17.5	16.7	.....	.....	64.0	1.8	.....	.....
Utah	4	.....	.....	.....	25.0	.....	.....	27.5	47.5	.....	.....
Nevada	6	.8	.....	13.3	10.8	3.3	.....	51.8	18.3	.....	1.7
Wyoming	5	58.0	.....	.....	.....	.....	1.6	40.4	.....	.....	.....
Southwest group—											
Colorado	8	1.2	.....	40.0	6.3	.....	.6	38.1	13.8	.....	.....
Arizona	1	.....	.....	.....	.....	.....	.....	100.0	.....	.....	.....
New Mexico	4	2.4	.....	.....	.....	.....	33.8	51.3	12.5	.....	.....
California	15	1.7	5.3	12.0	2.0	11.0	9.0	36.3	22.7	.....	.....

HOGS.

New England States:											
Maine	17	.....	.....	21.5	4.4	2.9	.....	42.7	25.3	3.2	.....
New Hampshire	2	.....	.....	17.5	.....	.....	.....	37.5	17.5	27.5	.....
Vermont	7	.....	.....	42.9	.....	.....	.....	18.6	33.6	4.3	0.6
Massachusetts	17	.....	.....	23.8	3.9	.....	.....	47.6	22.8	1.9	.....
Rhode Island	4	.....	.....	5.0	.....	.....	.....	48.8	25.0	21.2	.....
Connecticut	6	.....	.....	10.0	8.3	.....	.....	61.7	20.0	.....	.....
Cotton States:											
North Carolina	22	5.9	.....	14.5	1.8	.....	.....	29.6	24.6	23.6	.....
South Carolina	11	5.6	.....	4.5	.....	.5	.....	60.0	18.4	11.0	.....
Georgia	18	2.3	.....	5.0	2.8	.....	.....	31.7	27.3	30.9	.....
Florida	20	3.1	.....	8.3	8.0	.8	1.5	38.5	23.0	16.8	.....
Tennessee	29	5.0	0.9	51.8	4.0	.8	1.8	12.8	11.9	10.8	.2
Alabama	8	6.2	.....	14.4	.....	.....	.6	28.1	13.8	36.9	.....
Mississippi	12	7.6	.....	18.4	.....	.....	.1	32.9	9.3	31.7	.....
Arkansas	34	9.0	3.2	38.2	1.5	.....	6.5	20.4	6.1	15.1	.....
Louisiana	5	19.0	.....	2.0	.....	10.0	.4	63.2	5.0	.4	.....
Corn belt States:											
Indiana	88	14.8	5.7	63.2	4.0	.7	.6	6.1	1.4	3.0	.5
Illinois	99	24.3	.2	65.0	1.9	.6	.7	4.9	.8	1.5	.1
Iowa	96	22.4	5.4	60.4	3.8	3.3	.1	2.7	.6	1.1	.2
Missouri	62	15.6	1.9	69.3	.6	.1	2.6	4.6	1.9	3.4	.....
Nebraska	109	35.1	13.9	44.6	1.9	.....	.....	3.2	.4	.7	.2
Kansas	116	22.8	6.0	60.6	1.9	.2	.7	4.2	1.2	2.3	.1

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TABLE 2.—*Relative importance of the various methods of marketing live stock, by sections*—Continued.

HOGS—Continued.

State.	Number of estimates.	Shipped in carload lots by owners.	Shipped by cooperative shipping associations.	Sold to regular local dealers for shipment to market.	Sold to local packers.	Sold to packers' agents for shipment.	Sold for shipment to feeding points.	Sold to local butchers for retail-market trade.	Farm-slaughtered and sold in the carcass.	Farm-cured meats, sausage, etc.	Other methods.
Western range States:											
Northwest group—											
Oregon	9	2.2	5.6	28.3	14.4	5.0	.....	21.7	15.0	6.1	1.7
Washington	22	6.5	1.4	22.4	6.0	3.4	.....	34.8	24.3	1.2	.....
Montana	5	8.0	.....	16.0	2.0	20.0	.....	14.0	32.4	2.6	5.0
Idaho	18	10.3	14.2	35.7	10.6	14.8	.....	8.2	4.7	1.5	.....
Utah	9	3.9	.....	20.6	1.0	1.6	2.2	24.5	32.9	13.3	.....
Nevada	7	4.2	.....	23.6	19.3	6.4	.....	33.6	12.9	.....	.....
Wyoming	9	57.2	.....	6.4	.....	.....	12.6	3.8	18.6	1.4	.....
Southwest group—											
Colorado	16	27.6	5.6	35.6	3.4	1.6	.9	15.8	2.9	6.6	.....
Arizona	1	.....	.....	.....	.....	.....	.....	100.0	.....	.....	.....
New Mexico	6	13.3	.....	3.3	26.7	.....	.....	35.9	10.8	10.0	.....
California	15	7.7	5.3	35.8	6.7	16.0	1.3	24.9	1.3	.7	.3

SHEEP.

New England States:											
Maine	14	.....	.....	22.5	2.8	.....	.....	64.7	10.0	.....	.....
New Hampshire	2	.....	.....	37.5	.....	.....	.....	60.0	2.0	.....	0.5
Vermont	7	.....	.....	76.5	.....	.....	.....	5.7	17.4	.....	.4
Massachusetts	7	.....	.....	12.9	.....	14.3	.....	60.0	12.8	.....	.....
Rhode Island	3	.....	.....	.....	.....	.....	.....	98.0	2.0	.....	.....
Connecticut	5	.....	.....	20.0	10.0	.....	.....	54.0	16.0	.....	.....
Cotton States:											
North Carolina	13	8.5	.....	47.3	.....	.....	3.8	26.2	14.2	.....	.....
South Carolina	10	2.5	.....	3.4	.....	.....	.....	71.5	22.6	.....	.....
Georgia	10	2.0	.....	28.0	3.0	.....	3.0	51.5	11.5	.....	1.0
Florida	4	.....	.....	.....	22.5	.....	5.0	57.5	15.0	.....	.....
Tennessee	28	5.7	5.2	68.6	.4	.....	2.3	10.2	5.5	.....	2.1
Alabama	5	.....	.....	44.0	.....	.....	11.0	21.0	24.0	.....	.....
Mississippi	8	.....	.....	28.9	.....	.....	.....	64.8	6.3	.....	.....
Arkansas	24	10.0	4.4	47.9	1.0	.....	4.3	25.0	7.1	.....	.3
Louisiana	3	31.6	.....	3.3	.....	.7	.....	63.7	.7	.....	.....
Corn belt States:											
Indiana	79	14.8	6.1	71.8	2.0	.3	.2	3.1	.9	.....	.8
Illinois	70	35.9	.2	55.1	1.6	.6	.1	5.8	.5	.....	.2
Iowa	66	47.5	4.1	40.3	3.5	.5	.3	2.6	1.1	.....	.1
Missouri	51	15.0	3.6	73.7	.5	.....	1.7	3.4	.9	.....	1.2
Nebraska	56	79.7	9.1	7.3	.....	.....	.1	3.3	.1	.....	.4
Kansas	46	61.2	.7	30.9	2.8	.1	.8	2.6	.4	.....	.5
Western range States:											
Northwest group—											
Oregon	7	.....	7.1	23.6	18.6	11.4	2.9	18.6	16.4	.....	1.4
Washington	11	6.8	.....	5.0	6.4	3.6	4.6	55.0	18.6	.....	.....
Montana	5	70.0	.....	8.4	.....	.....	8.0	10.0	3.6	.....	.....
Idaho	12	55.5	.....	7.1	17.1	11.7	2.3	5.8	.5	.....	.....
Utah	8	25.5	.....	25.6	.....	10.6	.6	24.4	12.0	.....	1.3
Nevada	7	46.4	.....	19.7	4.3	9.3	4.3	13.6	2.4	.....	.....
Wyoming	12	85.2	.....	4.2	.....	1.7	7.0	1.8	.1	.....	.....
Southwest group—											
Colorado	12	65.8	.....	5.8	1.3	.....	23.8	2.6	.7	.....	.....
Arizona	3	27.7	.....	16.6	.....	11.0	44.7	.....	.....	.....	.....
New Mexico	7	6.4	.....	22.9	.1	.....	67.2	.7	2.7	.....	.....
California	31	19.8	6.9	32.2	11.5	17.7	.....	11.8	.1	.....	.....

Although it is impracticable to compute from these data average percentages which would represent the relative importance of each method of marketing in the entire country, owing to diversity in size of the States and the incomparable character of their live stock, nevertheless certain general distinctions which are brought out by the foregoing figures may be noted. With reference to the marketing of

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cattle, Table 2 indicates that in the majority of instances, in round numbers, from 40 to 80 per cent of the cattle marketed from the different sections are shipped to the large stockyards and packing centers, and that the percentage of cattle so marketed is least in the extreme eastern, western, and southern portions of the country and greatest in the North Central section; while from 10 to 50 per cent are sold to local butchers and packers and from 5 to 15 per cent are either farm slaughtered or marketed otherwise.

The proportions of veal calves shipped to the centralized markets vary in a general way from 25 to 75 per cent, the lowest percentages occurring in the extreme East and the West, and the highest in the North Central States, as in the case of cattle; about 25 to 50 per cent of the calves in different sections are sold to local retailers or packers and from 2 to 20 per cent as farm-slaughtered veal.

Speaking generally, from 25 to 80 per cent of the hogs marketed are shipped to the centralized markets, 10 to 40 per cent being sold to local retailers and packers, and from 5 to 35 per cent are farm slaughtered and sold in the carcass or as cured meats.

As to the marketing of sheep, the estimates show that from 35 to 90 per cent of the numbers marketed in the different sections are shipped to market, that from 10 to 50 per cent are sold to local butchers and packers, and that from 1 to 10 per cent are sold in the carcass or marketed otherwise. The data relative to sheep and hogs, like those on cattle and calves, also show that the practice of shipping to centralized markets prevails most generally in the Central States and that the greatest prevalence of local marketing is found in the extreme eastern, western, and southern sections. It must be borne in mind that these comparisons represent relative proportions and not actual numbers of arrivals marketed from the various sections.

Similar data from other sources with which to compare the foregoing estimates are not available, but the following citations pertaining to previous years are significant in this connection. The numbers of animals of different kinds slaughtered for food in 1909 and the percentages of each kind handled in slaughtering and meat-packing establishments, in retail houses, and on farms, respectively, were reported by the Bureau of the Census, as shown in Table 3.

TABLE 3.—*Animals slaughtered for food in the United States, 1909.*[1]

Class of animals.	Total number.	In slaughtering and meat-packing establishments.	In retail slaughter-houses.	On farms.
		Per cent.	*Per cent.*	*Per cent.*
Beeves	13,611,422	59.7	30.0	10.3
Calves	6,515,976	38.4	44.2	17.4
Sheep and lambs	14,724,699	83.2	13.2	3.6
Hogs	53,219,568	63.6	7.5	28.9
Goats and kids	285,553	11.6	46.7	41.7

[1] United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910, Manufactures 1909. Statistics for the Slaughtering and Meat Packing Industry, p. 14.

Numbers of cattle slaughtered at large centers, in small cities, and towns, and on farms and ranges, respectively, were estimated

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from figures given by the United States Bureau of Corporations as follows for the year 1903:

TABLE 4.—*Cattle slaughtered in the United States, 1903.*[1]

	Per cent.
Cities over 50,000 population	58
Cities and towns under 50,000 population	27
Farms and ranges	11
Export	4
Total	100

The percentage of slaughtering done in large slaughterhouses in 1900 was estimated by the Bureau of Statistics, United States Department of Agriculture, as follows:

TABLE 5.—*Animals slaughtered in wholesale slaughtering establishments, 1900.*[2]

	Per cent.
Cattle, excepting calves	41.05
Sheep, including lambs	33.85
Swine	56.91

Summing up the foregoing data relative to the three general classes of markets through which live stock is sold, it appears from the investigation herein reported that there is wide variation between one agricultural and live-stock producing section and another with respect to marketing methods, shipment to the centralized markets being practiced most generally in the Central States, and the local utilization of meat animals being most common in the East and South, while selling to packers or dealers at shipping points is characteristic of large sections in the West.

From the reports of the Census Bureau and from other data representing the country at large, it is estimated that about one-half the beef cattle, two-thirds of the hogs, and four-fifths of the sheep and lambs marketed in the United States pass through the large central markets; that about one-third of the cattle, one-twelfth of the hogs, and one-eighth of the sheep and lambs are sold for local slaughter; and that about one-tenth of the beef cattle, one-third of the hogs, and but 3 or 4 per cent of the sheep and lambs are slaughtered on farms and ranges. Considering that the animals which are shipped to the centralized markets generally are of heavier weights and of higher grades than stock slaughtered locally, it is apparent that much more than half—probably two-thirds or more—of the beef, mutton, and pork consumed is the product of animals which pass through the large centralized markets.

FACTORS IN THE COST OF MARKETING AND DISTRIBUTION.

An analysis of the economic problems of marketing in their bearing on the meat situation involves a systematic consideration of the instrumentalities and operations which enter into the cost of transporting, handling, and selling meat animals, from the producer to the slaughterer, and the manufacture of meat and by-products and their distribution through wholesale and retail channels to the consumer. Available data pertaining to particular phases of live-stock

[1] U. S. Commissioner of Corporations, Report on the Beef Industry, 1905, pp. 54–56.
[2] Holmes, George K., Meat Supply and Surplus. U. S. Dept. of Agriculture, Bureau of Statistics Bulletin No. 55, 1907, p. 69.

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marketing and meat distribution may be presented most effectively under the general topics (1) marketing through centralized markets and (2) local marketing and distribution. In connection with the former, the principal subjects to be considered are the shipment of stock to market; facilities, service, and charges at the prominent public live-stock markets; and the distribution of meats through the large packing centers. Factors in local marketing will be treated under the general heads of retail meat markets, municipal abattoirs, local packing plants, and farm-slaughtered meats.

MARKETING THROUGH CENTRALIZED MARKETS AND PACKING POINTS.

In this section of the report the subjects to be treated are the shipment of meat animals, the facilities and service at the large public stock markets, and the wholesale packing and distribution of meats.

Shipment of Live Stock to Market.

The time of year at which cattle, hogs, and sheep are put into the feed lot or placed upon grass has an important relation to the time at which they can be marketed. A summary of estimates furnished by special live-stock and price reporters of the Bureau of Crop Estimates affords a comparison of the different seasons with respect to the numbers of animals bought for grazing and feeding purposes. The accompanying data (Table 6) show the estimated percentages of cattle and sheep bought by stockmen and farmers in each season, while Table 8 represents the percentages of meat animals marketed during different periods of the year. Although these percentages are merely simple averages of the estimates as summarized by States (see Tables 7 and 9), and while the calculation of true weighted averages from available data is impossible, nevertheless the tables are an approximate indication of the extent of the seasonal variations in question.

Table 6.—*Estimated percentages of stockers and feeders bought in various seasons.*

Class of animals.	Fall.	Spring.	Summer.	Winter.	Fall and winter.	Fall and spring.	Fall and summer.	Winter and spring.	Spring and summer.
Cattle.....	56	15	3	3	8	7	5	2	1
Sheep.....	46	25	8	1	11	4	5	.....	.....

A marked tendency toward fall buying of feeding and grazing stock is shown by the figures, which indicate that approximately two-thirds of the cattle and sheep that are purchased as stockers and feeders are bought during the fall months. Moreover, the concentration of buying is much more marked than the figures in Table 6 suggest, for the principal feeding districts are the areas in which fall buying is the most prevalent. The figures used in compiling these averages show that approximately 60 per cent of the stocker and feeder cattle of the corn belt are bought in the fall months. Figures for the corn-belt States, with those for the two sheep-feeding States of Michigan and Ohio added, show that 65 per cent of the stocker and feeder sheep are bought in the fall. The schedules further show that the stockmen of these areas buy 47 per cent of their feed-lot supplies at the centralized markets.

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TABLE 7.—*Estimated percentages of stocker and feeder cattle and sheep bought in the various seasons of the year.*

State.	Cattle.									Sheep.						
	Fall.	Winter.	Spring.	Summer.	Fall and winter.	Fall and spring.	Fall and summer.	Winter and spring.	Spring and summer.	Fall.	Winter.	Spring.	Summer.	Fall and winter.	Fall and spring.	Fall and summer.
Alabama																
Arizona																
Arkansas	37.5	12.5	25.0		12.5			12.5				33.3		66.7		
California	25.0					25.0	50.0					66.7				33.3
Colorado																
Connecticut																
Delaware																
Florida																
Georgia	28.6		14.3		14.3	28.5		14.3								
Idaho																
Illinois	56.3	10.0	8.2		2.3	10.0	6.2	2.3	4.7	61.7		22.9		7.7	7.7	
Indiana	65.1		7.0	11.6	7.0	7.0	2.3			64.3		7.1		21.5	7.1	
Iowa	55.8		5.9		5.9	26.5		5.9		71.5					28.5	
Kansas	65.3	5.3	6.7	2.7	9.3	6.7	2.7		1.3	66.7		16.6		16.7		
Kentucky	54.9	6.4	12.9		9.7	3.2	9.7		3.2	11.1		44.5	38.9		5.5	
Louisiana																
Maine																
Maryland	66.7		33.3													
Massachusetts																
Michigan	58.4	8.3	16.7	8.3		8.3				71.5		14.3	14.2			
Minnesota	57.9	5.2	31.6		5.3					40.0		20.0		20.0		20.0
Mississippi	62.5	12.5	12.5						12.5							
Missouri	40.8		11.1	22.2	7.4	3.7	14.8			20.0		60.0	20.0			
Montana																
Nebraska	67.4	2.0	2.0	4.0	12.3	4.1	8.2			100.0						
Nevada																
New Hampshire			50.0		50.0											
New Jersey																
New Mexico																
New York	80.0							20.0								
North Carolina	75.0		12.5				12.5									
North Dakota																
Ohio	79.2		4.1	4.1	8.4	4.2				72.8		18.2		9.0		
Oklahoma	66.7	11.1			16.7	5.5										
Oregon																
Pennsylvania	72.8		18.2		9.0											
Rhode Island																
South Carolina																
South Dakota	61.2		27.8				5.5		5.5							
Tennessee	66.7		20.0	6.6				6.7		33.4		16.6	50.0			
Texas	51.8	10.3	13.7		6.9	17.3				16.7	16.6	50.0			16.7	
Utah																
Vermont																
Virginia	91.7				8.3											
Washington																
West Virginia	37.5		12.5	12.5		12.5	25.0			80.0						20.0
Wisconsin	35.8		35.7	7.1	21.4					33.4		33.3		33.3		
Wyoming																

By referring to the average estimates by States (Table 7), it is seen that the extent of fall buying of stocker and feeder cattle varies considerably among the different States, the minimum being 25 per cent in California and the maximum 91.7 per cent in Virginia. Nevertheless all the States are shown as buying more feeding and grazing cattle in the fall than in any other season. All of the States, with the exception of Kentucky, Missouri, Tennessee, and Texas, also buy a larger percentage of their stocker and feeder sheep and lambs in the fall than in any other one season. Of the States named all but Tennessee, which buys chiefly in the summer, purchase their thin sheep and lambs in the spring.

Table 8 shows the percentages of animals sold in various seasons as condensed from Table 9. The figures here shown as representative

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of the live-stock movements of the United States as a whole, although computed from estimates by States without reference to the extent of the industry in each, are considered a general indication of seasonal marketing tendencies. This conclusion has been strengthened because of the correlation between the data of Table 8 and the actual seasonal receipts in 1915 at 39 live-stock markets located in all sections of the United States, reports from which have been summarized in this office.

TABLE 8.—*Estimated percentages of animals sold in various seasons.*

Class of animals.	Fall.	Winter.	Spring.	Summer.	All seasons.
Cattle	41	18	20	17	4
Hogs	32	38	16	4	10
Sheep	42	13	18	26	1

TABLE 9.—*Estimated percentages of animals of different kinds marketed in the various seasons of the year.*

State.	Cattle.					Hogs.					Sheep.					Horses and mules.				
	Fall.	Winter.	Spring.	Summer.	Year round.	Fall.	Winter.	Spring.	Summer.	Year round.	Fall.	Winter.	Spring.	Summer.	Year round.	Fall.	Winter.	Spring.	Summer.	Year round.
Ala.	37.2	37.2	16.3	7.0	2.3	26.7	40.0	33.3	....	....	36.4	27.3	36.3	....	....	21.4	21.4	50.0	....	7.2
Ariz.	66.7	....	6.6	26.7	....	....	....	....	....	100.0	50.0	....	....	50.0	....	....	....	....	....	....
Ark.	47.3	14.0	12.7	23.3	2.7	35.0	42.0	12.0	7.0	4.0	55.3	7.9	10.5	26.3	....	25.5	29.1	27.3	3.6	14.5
Cal.	32.8	6.9	17.2	37.9	5.2	46.2	....	15.4	19.2	19.2	25.0	15.0	20.0	30.0	10.0	....	....	....	37.5	62.5
Colo.	47.8	21.8	23.2	7.2	....	26.5	32.4	17.6	....	23.5	43.6	15.4	41.0	....	....	15.8	....	42.1	....	42.1
Conn.	37.5	62.5	....	....	....	66.7	20.0	13.3	....	....	100.0	....	....	....	....	....	....	100.0	....	....
Del.	42.8	42.9	....	....	14.3	37.5	50.0	12.5	....	....	46.1	23.1	7.7	23.1	....	....	50.0	50.0	....	....
Fla.	25.8	14.5	21.0	29.0	9.7	25.5	51.1	10.6	....	12.8	7.7	23.1	7.7	46.1	15.4	42.9	42.9	7.1	....	7.1
Ga.	32.2	13.9	22.6	27.8	3.5	35.1	45.4	17.5	1.0	1.0	14.3	....	19.0	52.4	14.3	40.0	33.3	26.7	....	....
Idaho.	60.0	17.8	11.1	11.1	....	37.1	22.2	25.9	....	14.8	54.3	....	20.0	25.7	....	....	....	50.0	8.3	41.7
Ill.	21.4	22.6	29.7	23.6	2.7	19.4	40.5	19.8	6.3	14.0	13.9	18.3	33.0	32.2	2.6	20.1	31.9	32.0	4.9	11.1
Ind.	26.9	14.5	27.0	31.2	.4	24.5	29.5	11.7	19.0	15.3	42.3	12.8	14.1	27.5	3.3	7.5	25.0	52.5	4.2	10.8
Iowa.	19.9	28.9	30.9	18.8	1.5	11.4	44.1	21.2	5.7	17.6	34.9	27.3	25.7	12.1	....	7.4	38.5	34.8	8.2	11.1
Kans.	35.4	26.3	23.7	14.6	....	18.2	36.7	21.3	4.2	19.6	28.2	31.1	29.1	11.6	....	19.0	35.0	36.7	.4	8.9
Ky.	44.5	12.0	16.2	26.4	.9	32.4	28.2	11.3	18.3	9.8	15.5	1.0	3.9	79.6	....	28.0	23.7	44.1	.8	3.4
La.	12.5	6.2	56.3	12.5	12.5	....	75.0	....	....	25.0	30.0	10.0	30.0	30.0	....	....	....	....	....	....
Me.	46.8	19.1	27.7	4.3	2.1	54.2	8.3	37.5	....	....	50.0	4.5	13.7	31.8	....	....	....	....	....	....
Md.	6.7	6.7	53.3	20.0	13.3	29.2	33.3	29.2	....	8.3	18.2	....	31.8	45.5	4.5	....	....	....	....	....
Mass.	21.5	35.7	21.4	....	21.4	21.1	50.0	26.3	2.6	....	....	....	....	100.0	....	....	....	....	....	....
Mich.	36.4	13.3	24.8	25.5	....	34.2	43.0	7.9	2.6	12.3	37.5	29.5	20.5	12.5	....	15.4	7.7	46.2	15.4	15.3
Minn.	36.4	24.3	25.4	13.9	....	23.8	45.5	20.8	2.0	8.9	54.4	29.8	12.3	3.5	....	13.0	4.3	56.6	17.4	8.7
Miss.	40.4	28.1	10.5	21.0	....	17.4	60.9	13.0	....	8.7	21.1	15.8	26.3	31.6	5.2	....	....	....	....	....
Mo.	35.6	14.4	20.7	27.7	1.6	25.0	37.5	17.5	11.7	8.3	35.8	3.7	6.2	54.3	....	17.8	36.6	34.7	5.0	5.9
Mont.	46.7	20.0	20.0	13.3	....	45.5	36.3	9.1	....	9.1	75.0	8.3	16.7	....	....	33.4	....	33.3	....	33.3
Nebr.	18.0	26.2	40.1	15.7	....	8.1	31.4	30.5	13.1	16.9	5.1	46.2	41.0	7.7	....	16.1	30.2	39.7	6.5	7.5
Nev.	50.0	22.2	11.1	16.7	....	21.4	57.2	21.4	....	....	....	....	....	....	....	....	....	....	....	....
N. H.	50.0	18.2	22.7	9.1	....	50.0	35.0	15.0	....	....	38.5	23.0	23.1	15.4	....	....	....	....	....	....
N. J.	....	50.0	16.7	....	33.3	42.1	52.6	5.3	....	....	33.3	33.3	33.4	....	....	....	....	35.7	64.3	....
N. Mex.	44.0	....	16.0	40.0	....	....	....	....	....	....	100.0	....	....	....	....	....	....	....	....	....
N. Y.	50.5	10.9	20.8	17.8	....	45.7	20.0	11.4	8.6	14.3	55.5	16.7	13.9	13.9	....	....	....	....	....	....
N. C.	47.7	23.1	23.1	3.1	3.0	30.2	54.7	15.1	....	....	8.3	8.3	20.9	62.5	....	11.8	52.9	35.3	....	....
N. Dak.	62.9	12.6	9.1	14.7	.7	35.1	35.1	14.9	4.3	10.6	60.5	20.9	16.3	2.3	....	4.1	4.1	51.0	20.4	20.4
Ohio.	21.3	26.2	32.7	18.3	1.5	36.9	33.8	10.5	7.5	11.3	30.9	23.8	29.5	15.8	....	8.9	22.4	56.7	4.5	7.5
Okla.	35.9	23.4	11.7	28.3	.7	21.3	43.8	16.2	11.2	7.5	100.0	....	....	....	....	24.0	30.0	32.0	10.0	4.0
Oreg.	36.6	7.3	24.4	29.3	2.4	29.4	17.6	38.3	8.8	5.9	53.6	10.7	14.3	21.4	....	30.0	20.0	15.0	15.0	20.0
Pa.	25.9	13.0	36.1	23.1	1.9	39.8	34.5	16.8	8.0	1.9	47.5	15.2	11.9	25.4	....	3.6	10.7	78.6	3.6	3.5
R. I.	50.0	50.0	....	....	....	33.3	66.7	....	....	....	42.9	....	....	57.1	....	....	....	....	....	....
S. C.	30.8	5.1	30.8	33.3	....	26.8	56.1	14.7	2.4	....	25.0	20.8	25.0	29.2	....	16.7	44.5	33.3	5.5	....
S. Dak.	56.5	13.7	15.3	14.5	....	20.5	31.3	24.1	12.1	12.0	66.7	19.3	10.5	1.8	1.7	25.0	16.7	25.0	22.2	11.1
Tenn.	65.1	8.7	13.6	11.6	1.0	44.1	36.4	13.0	3.9	2.6	11.5	....	23.0	63.9	1.6	20.2	40.5	38.1	1.2	....
Tex.	36.7	13.9	34.8	14.6	....	42.4	42.3	11.7	.9	2.7	21.9	12.5	45.3	20.3	....	32.7	30.8	23.1	7.7	5.7
Utah.	43.5	17.4	30.4	8.7	....	27.3	45.4	18.2	....	9.1	46.1	23.1	23.1	7.7	....	8.3	25.0	50.0	....	16.7
Vt.	50.0	....	14.3	14.3	21.4	33.4	33.3	8.3	....	25.0	100.0	....	....	....	....	....	....	....	....	....
Va.	62.4	9.2	11.9	16.5	....	40.6	42.2	12.5	1.6	3.1	16.4	7.5	20.9	55.2	....	25.6	35.9	38.5	....	....
Wash.	40.8	3.7	5.5	38.9	11.1	46.8	25.5	19.2	2.1	6.4	40.8	18.5	25.9	14.8	....	....	....	81.8	9.1	9.1
W. Va.	55.2	10.5	3.8	29.5	1.0	47.3	30.9	14.5	7.3	....	34.9	1.6	4.8	58.7	....	7.7	7.7	84.6	....	....
Wis.	60.2	9.7	14.2	14.2	1.7	58.8	26.3	11.2	1.2	2.5	73.1	5.8	17.3	3.8	....	15.8	10.5	47.4	....	26.3
Wyo.	92.6	3.7	....	3.7	....	25.0	70.0	5.0	....	....	72.0	4.0	12.0	12.0	....	16.7	8.3	25.0	41.7	8.3

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The feeding sections sell fairly uniform numbers throughout the year, but estimates indicate that about 10 per cent more cattle are marketed in the spring than in the fall, the large proportion of cattle marketed in the fall being due chiefly to the annual contribution from the range States. The marketing of hogs is overwhelmingly a fall and winter movement throughout the country. This is due largely to the prevailing practice of having pigs farrowed in the spring in order to grow and fatten them most economically. The surplus-producing mutton States ship large numbers in the fall, which makes this the heavy marketing season for sheep. It is estimated that these States market 62 per cent of their sheep during the fall months. The sheep-feeding sections of the United States tend toward selling in the summer, with the exception of those few States which make a specialty of shipping spring lambs.

On the whole the data at hand indicate that both the buying of stockers and feeders and the selling of fat stock, especially from grazing sections, are confined too generally to a few months of the year. Although it is evident that movements of live stock are subject in a large degree to the same natural conditions that fix the limits of the grazing season and the maturity of crops available for stock feeding, and while such factors as the distribution of labor and accessibility of credit must be taken into consideration, nevertheless it is manifest that live stock operations in many sections are susceptible of better adjustment to market conditions, and that in the aggregate such readjustments would exert a marked influence toward a more even distribution of the supply. An excellent illustration of the possibilities in this direction is found in the activities of the National Wool Growers Association with reference to the introduction of early lambing, which has resulted in extending the market movement of northwestern lambs over the entire summer in addition to the brief fall period during which lambs from that section formerly were marketed. In feeding districts also, especially in the North Central States, it will be feasible in many instances to alter the time of placing animals on feed so as to regulate the time of marketing to better advantage, thus contributing to a more even-running supply and consequently more stable market conditions.

COST OF DRIVING AND HAULING STOCK.

After the animals have been started on feed or pasture, preparatory to finishing for slaughter, the first marketing cost is incurred by the transportation of the animals from the farm or range to the shipping point. Figures 1 and 2 on Plate I show, respectively, the cost of driving cattle and hauling hogs the various distances shown; the charges are independent of shrinkage costs. The figures are based on data taken from a bulletin of the Department of Agriculture[1] supplemented by the results of other investigations. The costs are expressed in terms of one lot of cattle and one wagon load of hogs, respectively, as the cost per head would vary greatly according to the number of animals involved. (Pl. I, figs. 1 and 2.)

[1] Andrews, Frank, Costs of Hauling Crops from Farms to Shipping Points. U. S. Dept. of Agriculture Bureau of Statistics, Bulletin No. 49, 1907, pp. 25 and 39.

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CONSIGNMENT TO MARKETS BY OWNERS.

The figures of Table 2 (pp. 12–14) show that the corn belt States lead all other groups in the percentage of marketed cattle shipped in carload lots by owners. Approximately one-third of the cattle sold from this group of States are disposed of in this manner. About one-fourth of the cattle marketed from the States of the southwestern and northwestern groups are shipped by owners. The proportion of cattle thus marketed in the cotton States is about one-twelfth of the total sold, while the ratio in the New England States is too small to record.

About one-twelfth of the calves sold from the States of the corn belt, which include several prominent dairy States, are shipped by owners. In the Northwest approximately one-tenth of the calves are shipped by owners. This fact is not surprising when it is considered that the northwestern group includes the States of Oregon and Washington, which rapidly are increasing their dairy industry. Data from the New England States indicate a very small proportion of shipments by owners. The lowest ratio is found in the States of the Southwest, where about 1 per cent of the calves sold are shipped by the owners.

As is to be expected in regard to hogs, the percentage shipped by owners runs highest in the corn belt, where about 23 per cent are sold in this manner. The corresponding proportion in the New England States is negligible, while the ratio thus marketed by the cotton States is about one-thirteenth. The rapid growth of the hog industry in the western and northwestern range States is indicated by their ratio for hogs shipped in carload lots by owners, which is greater than that for any other group except the States of the corn belt. In the marketing of sheep in carload lots by owners, the States of the Northwest rank highest; there about 41 per cent are shipped by producers. The corn belt group is second, with approximately 40 per cent thus marketed. With the exception of the New England States, for which no figures are given, the cotton States rank lowest in the number of sheep shipped to market by owners. In this group about one-sixteenth are shipped in this manner.

Comparing one class of animals with another in the same group of States, it is found in all sections, except the cotton States, that sheep show the largest proportion shipped in carload lots by growers, followed by cattle, then by hogs, and lastly by calves. In the cotton States the order as to numbers shipped by owners is cattle, hogs, sheep, and calves. In fact, in all the State groups of Table 2 the proportion of sheep marketed by owners leads to the conclusion that the majority of sheep producers are large-scale growers or feeders who handle stock in such numbers as to permit marketing in carload lots. The same is true of cattle, but to a less extent. The data on shipment of hogs by owners indicate the extent to which that class of animals has been introduced in the various systems of farm management in different sections of the country. The readiness with which hogs can be handled by retail butchers and small packing establishments also makes them the most negotiable form of live stock, which encourages their production in either large or small numbers. The small proportion of calves shipped in carload lots by owners is due largely to the fact that they are, so to speak, a by-product of other systems of live-stock farming, and therefore producers dispose of them regardless of numbers, as soon as they reach a marketable age.

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CONSIGNMENT TO MARKETS BY LOCAL DEALER-SHIPPERS.

An important economic factor in the marketing of live stock through the centralized market is the local dealer-shipper, or country buyer. An analysis of the receipts of the large public stockyards of the United States shows that country buyers consign at least 55 per cent of the total number of animals received. Hogs most generally are marketed in this manner; and calves, cattle, and sheep rank in the order named.

The schedules of questions which were sent to special live stock and price reporters included an inquiry as to the gross margins per hundredweight received by local dealer-shippers of live stock. The replies reveal some interesting figures relative to the operations of this class of dealers, who handle approximately one-third of the live stock marketed in the United States. A study of the margins set forth in Table 10 shows that, in general, the margins of the dealers vary inversely as the volume of business in the different States. The most usual margin received by dealer-shippers on cattle, calves, hogs, and sheep, the country over, is $1 per hundredweight.

TABLE 10.—*Average margins per hundredweight received by local dealer-shippers.*

State.	Cattle.	Calves.	Hogs.	Sheep.	State.	Cattle.	Calves.	Hogs.	Sheep.
Alabama					Nebraska	0.58	0.74	0.55	0.59
Arizona	0.90		0.90		Nevada				
Arkansas	1.19	1.16	1.15	1.29	New Hampshire	1.00	1.00	1.00	1.00
California	1.01	1.12	1.00	.93	New Jersey	1.00	2.00	1.00	1.00
Colorado	.80	1.25	.63	1.12	New Mexico				
Connecticut	1.00	1.75			New York	.99	1.47	1.11	1.06
Delaware					North Carolina	1.14		1.50	1.83
Florida	1.17	1.00	.80	1.00	North Dakota	.96	1.11	.98	1.18
Georgia	1.00	1.33	1.25	1.25	Ohio	.76	1.33	.69	1.06
Idaho	1.51	2.50	1.20	1.00	Oklahoma	.87	.83	.80	.88
Illinois	.65	1.10	.61	.92	Oregon	1.00	1.00	1.12	.93
Indiana	.62	1.21	.58	1.04	Pennsylvania	.87	1.34	.99	1.34
Iowa	.64	.98	.59	1.01	Rhode Island				
Kansas	.56	.79	.72	.84	South Carolina				
Kentucky	.94	1.53	.96	1.20	South Dakota	.78	.97	.69	.90
Louisiana	1.00	1.00			Tennessee	.95	1.43	1.12	1.44
Maine	1.50	1.16	.80	.60	Texas	.79	.83	.98	1.06
Maryland	.60	.93	.68	.90	Utah	1.50	1.25	1.67	1.38
Massachusetts	1.33	1.59	.83		Vermont	1.00	1.00	1.00	1.00
Michigan	.77	1.34	.91	1.06	Virginia	1.36	1.62	1.19	2.05
Minnesota	.65	.87	.59	.82	Washington	.90	.75	.86	.88
Mississippi	1.23	1.25	1.37	1.37	West Virginia	1.41	1.90	1.15	1.56
Missouri	.63	1.22	.68	1.04	Wisconsin	.63	1.07	.57	.89
Montana	1.00	1.00	1.00	1.00	Wyoming	.75	.75	.75	.75

Special reports from 15 centralized live stock markets indicate that the country dealer-shipper consigned to these markets, in 1915, a total of approximately 3,998,300 cattle, 16,279,100 hogs, and 3,602,300 sheep. The country dealers' gross margins on these animals, based upon the estimated margins shown by Table 10, amounted in round numbers to about $29,912,000 on cattle, $23,897,000 on hogs, and $2,490,000 on sheep, or a total of $56,299,000 for their consignments to 15 markets. Compared with the estimated value of the animals sold, the gross margins realized by local dealers represent 10.34, 10.33, and 12.9 per cent on cattle, hogs, and sheep, respectively. It must be borne in mind, of course, that out of this margin the dealer-shipper must pay the expenses of buying and handling, freight charges, feed, shrinkage, loss and damage in transit, commissions, yardage, dockage, and other marketing expenses. These huge sums, however, serve to emphasize the fact that live stock producers, in the aggregate,

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pay to local shippers a toll sufficient to determine the difference between profit and loss. Usually it is the small stockman who does not produce enough animals to fill a car who sells to the local buyer.

Considering the groups of States in Table 2 it is noted that considerable percentages of animals of different classes are handled by local dealer-shippers in the various sections of the country. In the corn belt States the percentages of cattle, calves, hogs, and sheep handled by dealer-shippers are greater than those of any other system of selling listed in Table 2. In the cotton States this method ranks second, in every case the principal means of sale being through the local butchers. The proportions taken by the dealer-shippers in the States of the Southwest are next to the largest for every class of animals but sheep, and in this connection attention should be called to the fact that a large percentage of the sheep of Arizona, New Mexico, and southern Colorado are handled through the general merchants of those sections, who act as contractors. For this service these merchants receive a commission, and although technically they are not dealer-shippers, they serve the same function and for practical purposes are to be classed with them. If all the sheep handled by these contractors were added to those reported for the dealer-shippers, there is little doubt that the proportion of sheep sold to local dealer-shippers would be raised from third to second place, and thus would correspond with the returns for other classes of stock in the southwestern group. In the Northwestern States the proportions of all classes of stock taken by dealer-shippers rank third, except for hogs; and in these States the dealers handle a greater percentage of the hogs than are sold by any other method, as they are produced on too small a scale to permit marketing in carload lots by owners.

Approximately one-half of the cattle and sheep, nearly one-half of the calves, and three-fifths of the hogs of the corn belt States are sold through dealer-shippers. In the cotton States these middlemen handle about one-third of the cattle, calves, and sheep and about one-sixth of the hogs. In the southwestern and northwestern groups the local buyers market approximately one-fourth of the cattle, one-fifth of the hogs, and one-sixth of the sheep. In the former group of States one-third of the calves are shipped by dealer-shippers, while one-sixth of the calves are thus marketed in the Northwestern States. In the New England States the prevailing method of marketing all kinds of stock is through the dealer-shippers, except in some localities where selling to local butchers predominates.

COOPERATIVE LIVE-STOCK SHIPPING ASSOCIATIONS.

The purpose of cooperative associations for the shipment of live stock is to enable farmers who produce marketable stock in small numbers to sell their animals at the centralized live stock markets at prevailing market prices, less the actual cost of marketing. This method of marketing stock is adapted particularly to sections in which live stock production is incidental to other systems of farming, and where consequently most farmers have only a few animals to sell at one time. Although the custom of combining two or more consignments of animals to make up a carload for shipment to market has been more or less common among farmers for many years, the first cooperative association for that purpose was organized at Litchfield, Minn., in 1908. Other communities were quick to see the benefits of

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this method of shipping live stock, and the movement has extended rapidly. Thus far this office has learned of approximately 750 organizations, located in 15 States, that are marketing live stock in a cooperative way. The list is being increased continually. Of the total mentioned, about 430 are primarily live stock shipping associations, while the remainder consist of cooperative elevators and other farmers' associations that are conducting a live stock shipping business as a department or branch of the organization. The former are distributed in 13 States, as shown on the accompanying map. (Pl. II, fig. 1.) At least 215, approximately half, of these associations are in the State of Minnesota.

Referring to the summary of schedules in Table 1, it will be seen that the cooperative shipping of live stock is reported from some of the States not indicated by the map. This fact is explained in part by the practice of combining stock to make carload shipments without a regular organization for the purpose, which is not an uncommon practice. Doubtless also there are other associations of this kind, the names of which have not yet been included in the list mentioned. It is noticeable, however, that the States in which cooperative shipping appears most prevalent according to the schedules summarized in Table 1 correspond closely with the States in which organizations for this purpose are known to be located, as shown in Plate II, figure 1. In Minnesota, for example, it is shown by the schedules that 22 per cent of the cattle, 13 per cent of the calves, 24 per cent of the hogs, and 15 per cent of the sheep are shipped through cooperative organizations. Estimates of the proportions of stock thus marketed from 14 other States in which such associations are known to be located are as follows, by classes of stock: Cattle 3.6 per cent, calves 3.8 per cent, hogs 4.6 per cent, and sheep 3.5 per cent.

The organization and operation of these associations have been described in detail in Farmers' Bulletin 718.[1] The simplicity of the plan accounts to a large extent for the rapid extension of the movement. A simple constitution and by-laws are sufficient; and no capital is necessary, because each shipper receives payment for his stock after the returns on each car are received. Stock pens and scales are furnished by railroads at loading points; consequently but little equipment is required. The selection of a competent manager is, perhaps, the most important factor in the success or failure of the organization. He must be both honest and capable, with a thorough knowledge of live stock and an understanding of business methods and principles. With such a manager and a spirit of loyalty among the members of the association, the success of such a movement usually is assured.

The cost of marketing live stock through these associations consists of specified charges, which are deducted from the returns of each shipment to cover the manager's compensation and incidental expenses and to maintain a sinking fund or protection fund; also the pro rata share of freight, yardage, commission and feed, and other market expenses on each carload. The manager's fee usually is from 5 to 8 cents per hundredweight, but in some associations a rate per car is fixed, in which case the usual amounts are $10 to $15 per car. The sinking fund is for the purpose of reimbursing members for animals killed or injured in transit. Two cents per hundred-

[1] Doty, S. W., and Hall, L. D., Cooperative Live Stock Shipping Associations. U. S. Dept. of Agriculture, Farmers' Bulletin 718, 1916.

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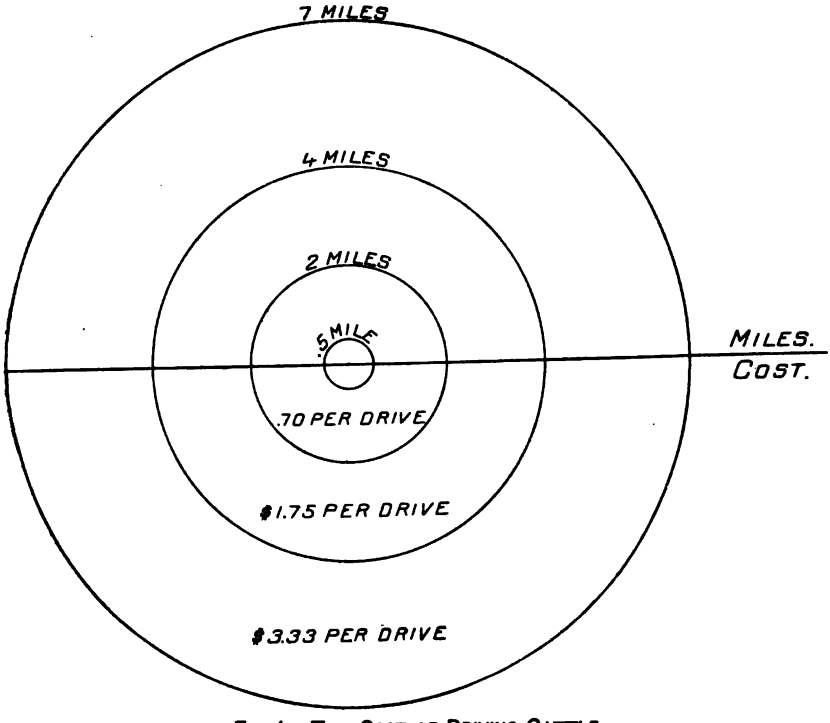

FIG. 1.—THE COST OF DRIVING CATTLE

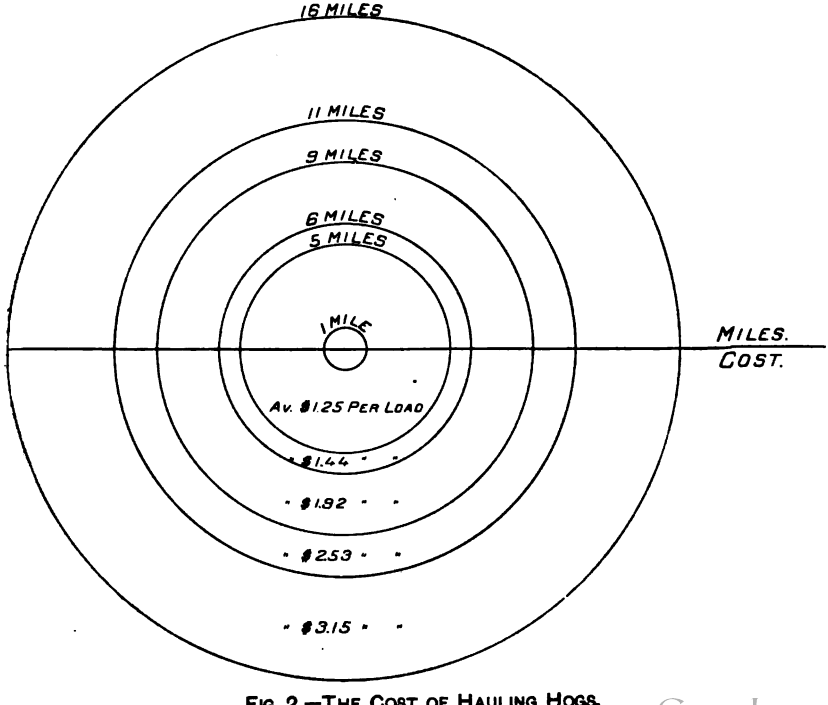

FIG. 2.—THE COST OF HAULING HOGS.

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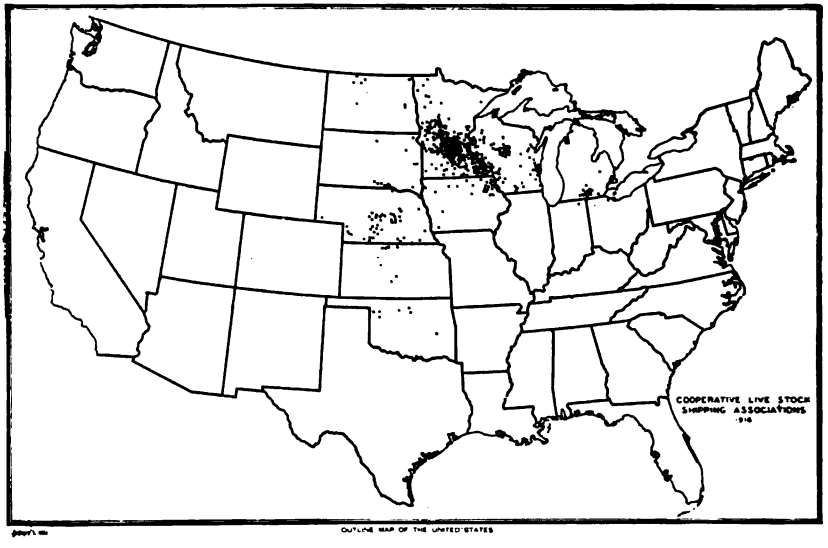

FIG. 1.--COOPERATIVE LIVE-STOCK SHIPPING ASSOCIATIONS.

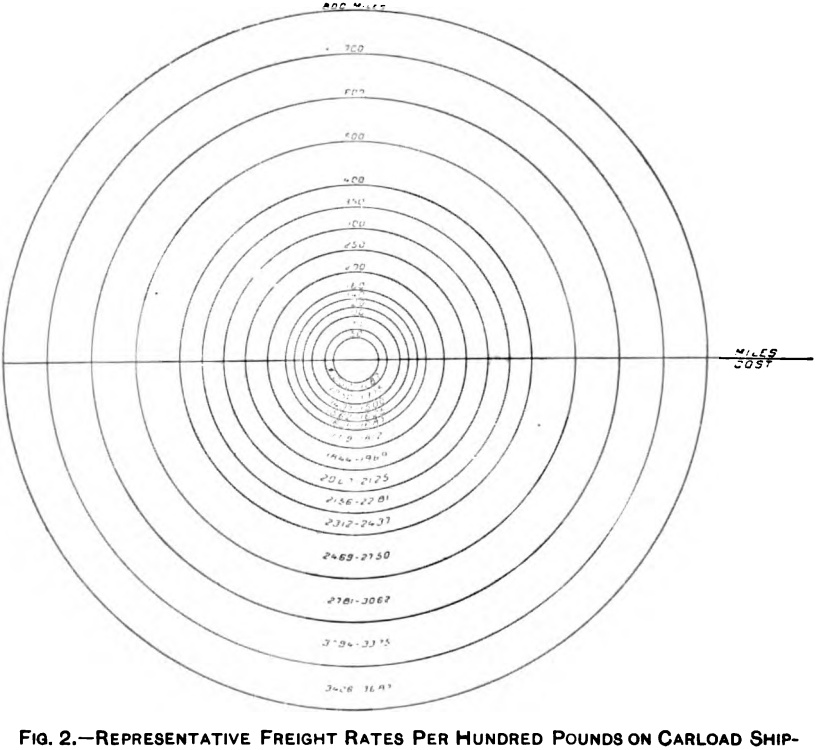

FIG. 2.—REPRESENTATIVE FREIGHT RATES PER HUNDRED POUNDS ON CARLOAD SHIPMENTS OF CATTLE; AND CARLOAD SHIPMENTS OF HOGS, SHEEP, CALVES, AND GOATS IN DOUBLE-DECK CARS.

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weight on all cattle shipped and 3 cents per hundredweight on all hogs, sheep, and calves shipped by the association usually are the rates adopted to provide for such a fund.

The gross cost of marketing in this manner is indicated by statements of the Farmers' Shipping Association of Litchfield, Minn., which show that the average expense for the years 1913, 1914, and 1915 has been 33 cents per hundredweight, and that this is from 10 to 40 cents less than the average margins on which local buyers formerly bought from farmers in the community. The relative cost of marketing the different classes of animals also is shown by a statement of the same association concerning its business for the calendar year 1915, as follows:

TABLE 11.—*Operations of Litchfield Live Stock Shipping Association, 1915.*

Class of animals.	Number.	Weight.	Average weight.	Expense per hundredweight.	Receipts.	Expenses.	Net.
		Pounds.	*Pounds.*				
Hogs	7,711	1,590,415	206	$0.328	$106,198.07	$5,219.07	$100,979.00
Cattle	2,028	1,707,195	841	.285	88,987.01	4,860.96	84,126.05
Veal calves	1,695	242,625	143	.55	18,849.71	1,343.25	17,506.46
Sheep	375	41,290	110	.46	2,483.63	190.53	2,293.10

It is noted that the marketing expense per hundred pounds live weight was least, 28.5 cents, in the case of cattle, and greatest, 55 cents, on veal calves, hogs being marketed at a cost of 32.8 cents and sheep 46 cents per hundredweight. The nature of the expenses is shown by the following statement of disbursements:

TABLE 12.—*Classified disbursements of Litchfield Live Stock Shipping Association, 1915.*

Feed, straw, lumber, etc	$478.56
Manager's commissions	2,132.09
Freight and market expenses	9,003.16
Net paid out for stock	204,904.61
Total receipts	216,518.42

In the above instance the cost of marketing was 5.4 per cent of the gross receipts for live stock. This ratio, of course, varies largely at different places, according to the distances from market and corresponding differences in freight rates and shrinkage.

Other associations report returns as high as $2.25 per hundredweight above local prices, and a comparison of the marketing charges of these associations with the prevailing gross margins of $1 to $2 which local shipper-dealers realize on their shipments indicates the possibilities of this system of cooperative marketing.

These associations have economic and educational features which are of importance to any community in which farmers have live stock to market in small lots. The greater net return to the farmer because of the reduction of marketing expenses and the realization of actual market prices probably is the greatest advantage. The saving in time and labor in assembling the stock of a shipment, while not reducible to dollars and cents, also has an economic importance. Because of this saving it is often possible for the manager of the association to ship all the stock from the same territory formerly covered by several local shippers. Further, farmers are encouraged to study market conditions and demands and to learn how to pre-

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pare stock for shipment. Of no less importance is the general improvement in the methods of marketing live stock in the community resulting from the activities of a competent manager and the influence of a successful association.

SELLING DIRECT TO PACKERS.

Sections in which the selling of live stock direct to packing concerns for shipment to their plants is a common method of marketing, and the comparative extent to which the practice prevails is indicated by the data in Tables 1 and 2, sixth column (pp. 9 to 14), showing the percentages of the different classes of animals sold to packers' agents for shipment. Some of the estimates on this item doubtless include animals which are sold to packing establishments not located at the large centralized markets and packing points. On the other hand, the estimates in the preceding column, of stock sold to local packers, doubtless refer in some instances to establishments which operate on a large scale, and a part of the animals sold to local dealers are resold to packers. It is impossible to state what allowance should be made for these factors, but it is probable that the percentages of animals sold to be shipped direct to packing plants is greater, in many instances, than Tables 1 and 2 seem to indicate.

Comparing the different sections with respect to the practice of selling direct to packers, it is evident that all classes of stock are sold in this manner more largely in California than in any other State or section; and that it is most characteristic of the western group of States in general. This condition is associated with the absence of centralized live-stock markets at Pacific slope points. Such markets have been established at several places in the Pacific Northwest during recent years, but the packing centers of California still obtain their live-stock supply chiefly by direct purchase from producers and dealers. In Massachusetts cattle and sheep bought by packers consist largely of stock which is shipped to plants at Boston and surrounding cities. Doubtless, also, some of the estimates representing sales to local packers in New England relate to animals which are slaughtered in plants at the large cities.

In the corn belt States the proportion of animals sold direct to packers is small, although it is a factor of considerable aggregate importance in the marketing of hogs, especially in Iowa. Comparatively negligible percentages of cattle, calves, and sheep are marketed in this way in the corn belt, west of Chicago. Indiana and Ohio cattle feeders sell considerable numbers of cattle to packers for slaughter at eastern seaboard cities.

In the cotton States, with the exception of cattle marketed from Georgia and Florida and hogs from Louisiana, very small proportions of the different classes of live stock are sold for shipment direct to packers. This may be attributed mainly to the lack of surplus stock in the South, together with the unsatisfactory marketing and shipping facilities which exist.

Until properly organized and equipped centralized live-stock markets are developed in the sections which now market a large portion of their live stock by selling direct to packers, that method of marketing presumably will remain an important factor in those parts of the country. The present tendency and effect of direct country buying in the Middle West, particularly as regards hogs marketed from the corn belt, is a matter of much discussion. At a

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hearing conducted by the Chief of this office November 15 and 16, 1915, at Chicago, the following statement was presented by the secretary of the American National Live Stock Association as an authorized expression of the views of that organization:[1]

The increased selling of live stock in the country direct to slaughterers is a manifest expression of dissatisfaction on the part of the producer with some of the market methods, is a protest against the increasing expenses of handling live stock on public markets, and plainly shows a desire to avoid the uncertainties of the market. A producer knows what he is to receive when he sells in the country. Nobody knows what he is liable to get when he ships to market. It is difficult to understand how purchases in the country can have much if any real effect on the prices at central markets; it removes some competition, it is true, but at the same time it relieves the market from the burden of additional receipts. The two balance. Such purchases and sales in the country are not likely to increase under the present live-stock conditions and the small holdings of stock by any one owner. The question of country buying is primarily one between the producer and the packer.

At the same hearing the chairman of the committee on country buying of the National Live Stock Exchange made the following remarks relative to the views of commission men on country buying:

As regards fat cattle, it is advocated to-day that the man who sells a lot of cattle, hogs, or sheep to the packer in the country is digging his own grave; he has taken the competition, or the demand, rather, out of the market for that article, and he has depressed the market not only on himself, but on every other market in the United States, as well as every feed lot. The packer does not go to the country for his health or because he is a philanthropist or wants to help the producer. He goes there for a direct purpose, and that purpose in many instances is to break the big market at Chicago, and by breaking that he breaks it all over the United States. He goes out and buys trainloads of sheep, piles of hogs and cattle, and takes the orders out of Chicago, which naturally depresses the market.[2]

It is contended also that special through-billing and double-decking privileges granted by railroads to large packing interests on hogs handled through certain concentrating stations give packers an undue advantage over other shippers. At these stations, which are located principally in Iowa, also in Illinois, Minnesota, and South Dakota, hogs are shipped from local points in single-deck cars, weighed, sorted, and reloaded into double-deck cars at the assembling points, and forwarded direct to packing plants, particularly to those in the East. The saving effected by applying through rates to the hogs without maintaining the identity of the shipment from point of origin to destination is said to be a material factor in favor of direct buying.

In reply to inquiries from this office to the five largest packing companies, the following statements were received, which indicate their position with reference to country buying:

(1) So far as we know, none of the packers are engaged in the business of buying live stock in the country for the purpose of supplying their plants located at the large stockyard points. As far as we know, there is no country cattle buying west of Chicago except through live-stock commission firms. All the packers who have slaughterhouses in New York and other seaboard towns purchase a certain amount of their supplies of fat cattle for these plants in States east of Chicago, viz, Indiana, Ohio, Kentucky, Virginia, and Pennsylvania. This buying is forced by competition and is justified by the saving in transportation and feed, in shrinkage in transit, and in freedom from bruises. The cattle raiser is able to get a better price for his cattle, in addition to avoiding the stockyards' charges and the commission for selling. About 1 per cent of the cattle of the large packers is country bought. The same remarks apply in the case of sheep and lambs. There are in Iowa, South Dakota, Minnesota, and Wisconsin packers who do a fairly large business, whose plants are located at points where there are no stockyards, necessitating their going to the country for their hogs. At

[1] United States Congress (64th), House Document No. 855. Proceedings of the Conference Relative to the Marketing of Live Stock, Distribution of Meats, and Related Matters (1916), p. 16.
[2] *Ibid.*

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some of these points hogs are bought for eastern slaughterhouses. We know of the following points where buying is done by various packers: Cudahy, Wis.; Sioux Falls and Mitchell, S. Dak.; Kearney, Nebr.; Albert Lea and Austin, Minn.; Fort Dodge, Des Moines, Cedar Rapids, Greenfield, Creston, Ottumwa, McGregor, Muscatine, Clinton, Burlington, and Valley Junction, Iowa, and Savannah and Keithsburg, Ill.

So far as we know, there is direct purchasing of hogs in stockyards town only at Chicago, St. Louis, and Kansas City, and in each of these cases the plant involved is not located adjacent to the stockyards so as to be able to obtain a supply of hogs on an equal basis with its competitors. These three plants are from 2 to 10 miles distant from the stockyards, so that if they purchased their supply of hogs on the local yards the hogs would have to be loaded into cars involving expense for loading, switching, as well as shrinkage in transit and bruises, all of which would prevent them from competing successfully—volume about 1,000,000 head per year.

Country buying was not inaugurated, so far as we know, with any idea of injuring the business of the commission firms or getting any undue advantage over the owner of the stock. It is the natural and necessary way to secure a supply of hogs for plants not situated at stockyards; it will have to be continued as competition forces the adoption of economic methods. We understand good market values are paid the shippers for their hogs and the shippers are satisfied, and the practice is fully justified by its economic advantages to all concerned.

(2) So far as we are concerned, our buying in the country has been only occasional and when done has been solely when we felt the necessity of having to make an individual endeavor to secure at a given market some supplies which would not otherwise be there. For instance, we have bought west of the Missouri River sheep for use at Sioux City, which would otherwise have come direct to Chicago. Also, during shortages of hogs at Kansas City, we have bought, at interior points in Iowa, hogs that otherwise would have moved eastward rather than westward. But, naturally, we have only felt like assuming the extra cost of such transactions when supplies were short.

The relative percentage of such purchases in our total volume is extremely small and there is no single location where any substantial volume has been secured, the point being that, in times of need, we have had to go wherever the particular live stock could be secured.

(3) This company does practically no country buying. At the time we were exporting live cattle, we used to buy a good many Virginia cattle, the advantage being that a large amount would have to go forward at a definite time, and in this way we would not have to depend on what came to the market. Occasionally in the last few years we bought Kentucky distillery cattle and shipped them direct to New York. At the time of the foot-and-mouth quarantine we were forced to buy some cattle to supply our New York houses, as shipments from Chicago markets were prohibited and there were not enough cattle of satisfactory quality coming from the western markets to supply our trade. We have never bought any hogs in the country. As a whole we believe that both the stockmen and the packers would be better off if all the packers bought all the stock they kill on the open market.

(4) This is something that enters into our business in a very small way. The only country buying we do is in the spring and summer—we purchase cattle that are fed in Kentucky, Indiana, and Ohio for shipment to our New York abattoir. The reason for this is that these cattle would not move toward any of the markets where we have regular buyers. We don't buy any hogs or sheep in the country and have no buying stations.

(5) It has not been the policy of this concern to purchase to any great extent in the country. Personally I am rather opposed to the idea, as I feel there is very little advantage to the packers in operating on country buying, and I am of the opinion that it ultimately would be a disadvantage to them.

The extension of this method of marketing appears to be limited by the conditions that have caused the development of the great live stock market centers, as noted in the section of that subject. The cooperative live stock shipping association movement, which is a factor of increasing importance, also makes for the maintenance of the centralized markets and thereby inhibits the growth of direct buying operations.

It is obvious, however, that in so far as the sale of meat animals direct to packers tends toward the unstabilizing or manipulation of prices and movements at the central markets, the effect must be detrimental to the industry, and that any special privileges or abuses which exist in connection with the practice manifestly should be abolished or rectified.

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RAILROAD SERVICE.

Among the numerous and important problems involved in the transportation of live stock to market, only a few that bear most directly upon the cost of marketing could be considered in this investigation. The subjects on which data have been assembled are freight tariffs, train service, loading and bedding cars, feed in transit, loss and damage, and shrinkage in transit.

FREIGHT TARIFFS.—Freight rates, minimum carload rates, and other provisions of railroad contracts for the transportation of live stock vary so greatly throughout the United States that general statements relative to the cost of transportation are subject to much modification. For example, in the Southeast and in some sections of the West it is the general practice to publish live-stock rates on a per car basis, the rate varying with the length of the car; while in most other territory the rates are named on a weight basis. Minimum weights and car lengths also vary among railroads in the same territory.

Plate II, figure 2, and Plate III, figures 1 and 2, illustrate the maximum rates recently prescribed by the Interstate Commerce Commission for a single-line transportation of live stock in Central Freight Association territory.[1]

Although not applicable to all parts of the country, the ratios are significant in this connection. A comparison of quoted tariffs effective in the different sections of the country is impracticable, owing to the variations mentioned above; but certain general differences are shown in a compilation of rates in the three principal freight classification territories which has been made by Mr. Frank Andrews of the Bureau of Crop Estimates (see Table 13). These averages, which were based on total tonnage carried and average length of haul, show average freight rates for the years 1911, 1912, and 1913, as follows: Eastern or official territory, 10 cents; southern territory, 11.9 cents; western territory, 14.9 cents. (For definitions of territories mentioned, see Table 13.) Rates on cattle, hogs, and sheep for selected routes also are shown in Tables 14, 15, and 16.

TABLE 13.—*Average freight rates and lengths of haul for live stock and dressed meats carried on railroads in the United States, 1911–1913.*

[Compiled from reports of the Interstate Commerce Commission. The figures are based upon data for 60 to 65 per cent of the total operated mileage of railroads of the United States.]

Item, and year ending June 30.	District.[2]			United States.
	Eastern.	Southern.	Western.	
LIVE STOCK.				
Average receipts per ton-mile:				
1911.....cents..	0.789	1.490	1.386	1.214
1912.....do....	.813	1.568	1.401	1.230
1913.....do....	.842	1.723	1.397	1.258
Mean, three years.....do....	.815	1.594	1.395	1.234
Average length of haul:				
1911.....miles..	252.90	161.59	221.21	224.10
1912.....do....	256.26	152.25	210.83	216.76
1913.....do....	228.34	138.12	209.12	208.84
Mean, three years.....do....	245.80	150.65	213.72	216.57

[1] Interstate Commerce Commission Order in the Eastern Live Stock Case 36, I. C. C., 675 (Dec. 2, 1915).

[2] The three districts are thus defined: The eastern district comprises that portion of the United States "bounded on the west by the northern and western shore of Lake Michigan to Chicago, thence by a line to Peoria, thence to East St. Louis, thence down the Mississippi River to the mouth of the Ohio River, and on the south by the Ohio River from its mouth to Parkersburg, W. Va.; thence by a line to the southwestern corner of Maryland, thence by the Potomac River to its mouth." The southern district is bounded on the north by the eastern district and on the west by the Mississippi River. The remainder of the United States, exclusive of Alaska and island possessions, is included in the western district.

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TABLE 13.—*Average freight rates and lengths of haul for live stock and dressed meats carried on railroads in the United States, 1911–1913*—Continued.

Item, and year ending June 30.	District.			United States.
	Eastern.	Southern.	Western.	
LIVE STOCK—continued.				
Average freight rate per 100 pounds, for a haul of average length:				
1911.....cents..	10.0	12.0	15.3	13.6
1912.....do....	10.4	11.9	14.8	13.3
1913.....do....	9.6	11.9	14.6	13.1
Mean, three years.....do....	10.0	11.9	14.9	13.3
DRESSED MEATS.				
Average receipts per ton-mile:				
1911.....cents..	.892	.972	1.121	.960
1912.....do....	.896	1.091	1.150	.984
1913.....do....	.893	1.043	1.106	.965
Mean, three years.....do....	.894	1.035	1.126	.970
Average length of haul:				
1911.....miles..	309.52	247.65	313.20	306.80
1912.....do....	327.11	255.15	321.20	319.90
1913.....do....	327.07	254.85	327.47	322.73
Mean, three years.....do....	321.23	252.55	320.62	316.48
Average freight rate per 100 pounds, for a haul of average length:				
1911.....cents..	13.8	12.0	17.6	14.7
1912.....do....	14.7	13.9	18.5	15.7
1913.....do....	14.6	13.3	18.1	15.6
Mean, three years.....do....	14.4	13.1	18.1	15.3

TABLE 14.—*Freight rates per 100 pounds on cattle over various routes, in January, 1915.*

[Freight rates were furnished by the Division of Tariffs, Interstate Commerce Commission. Minimum weights of carloads subject to the rates below range from 20,000 to 22,000 pounds.]

From—	To—	Approximate distance.[1]	Rate per 100 pounds.
		Miles.	*Cents.*
Fort Worth, Tex	Kansas City, Mo	508	33.5
Do	East St. Louis, Ill	743	39.5
North Platte, Nebr	South Omaha, Nebr	287	17.42
Billings, Mont	South St. Paul, Minn.[2]	892	41.5
Mankato, Minn	do	86	12.5
Kansas City, Mo	Ames, Iowa	256	20.0
Do	Aurora, Ill	451	23.5
Do	East St. Louis, Ill	283	17.0
South Omaha, Nebr	Ames, Iowa	169	13.0
Do	Aurora, Ill	463	23.5
Centralia, Ill	East St. Louis, Ill	62	9.1
Beardstown, Ill	do	110	10.2
Galesburg, Ill	do	196	12.3
Moline, Ill	do	247	13.8
Mendota, Ill	do	244	14.1
Fort Worth, Tex	Chicago, Ill.[3]	924	49.75
Kansas City, Mo	do	454	23.5
South Omaha, Nebr	do	496	23.5
South St. Paul, Minn.[2]	do	398	25.0
Ames, Iowa	do	326	22.0
Aurora, Ill	do	37	7.6
Mendota, Ill	do	83	9.5
Galesburg, Ill	do	163	11.7
Beardstown, Ill	do	236	12.9
Colmar, Ill	do	217	13.2
Dubuque, Iowa	do	186	14.7
Chicago, Ill.[3]	Buffalo, N. Y	540	18.9
Do	Pittsburgh, Pa	468	18.9
Do	Baltimore, Md	797	26.4
Do	Philadelphia, Pa	787	27.4
Do	New York, N. Y	908	29.4
Do	Boston, Mass	1,038	29.4
Erie, Pa	Buffalo, N. Y	88	9.5
Cleveland, Ohio	do	183	10.5
Elyria, Ohio	do	208	11.0
Sandusky, Ohio	do	243	13.7

[1] Over a representative route, as shown on passenger-service time tables.
[2] Plus $2.50 per car switching from St. Paul to South St. Paul.
[3] When to or from Union Stock Yards, $2 per car in addition to Chicago rate.

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TABLE 15.—*Freight rates per 100 pounds on hogs over various routes, in January, 1915.*

[Freight rates were furnished by the Division of Tariffs, Interstate Commerce Commission. Minimum weights of carloads subject to the rates below range from 16,000 to 17,000 pounds for single-deck and 22,000 to 34,000 pounds for double-deck cars.]

From—	To—	Approximate distance.[1]	Rate per 100 pounds.
		Miles.	*Cents.*
Hastings, Nebr	South Omaha, Nebr	146	15.72
Sioux Falls, S. Dak	do	267	23.5
Hutchinson, Kans	Kansas City, Mo	224	20.0
Ardmore, Okla	do	471	44.25
Mexico, Mo	East St. Louis, Ill	120	13.5
Springfield, Mo	do	241	21.0
Centralia, Ill	do	62	11.0
Beardstown, Ill	do	110	12.7
Quincy, Ill	do	143	13.1
Galesburg, Ill	do	196	15.0
Moline, Ill	do	247	15.8
Mendota, Ill	do	244	16.3
South Omaha, Nebr	Chicago, Ill.[2]	496	23.5
Kansas City, Mo	do	454	23.5
East St. Louis, Ill	do	290	16.7
Ames, Iowa	do	326	22.5
Aurora, Ill	do	37	8.8
Mendota, Ill	do	83	11.6
Galesburg, Ill	do	163	14.4
Colmar, Ill	do	217	16.9
Dubuque, Iowa	do	186	15.8
Chicago, Ill.[2]	Buffalo, N. Y	540	18.9
Do	Pittsburgh, Pa	468	18.9
Do	Baltimore, Md	797	28.5
Do	Philadelphia, Pa	787	29.5
Do	New York, N. Y	908	31.5
Do	Boston, Mass	1,038	31.5
Erie, Pa	Buffalo, N. Y	88	9.5
Cleveland, Ohio	do	183	10.5
Elyria, Ohio	do	208	11.0
Sandusky, Ohio	do	243	13.7

[1] Over a representative route, as shown on passenger-service time tables.
[2] When to or from Union Stock Yards, $2 per car in addition to Chicago rate.

TABLE 16.—*Freight rates per 100 pounds on sheep over various routes, in January, 1915.*

[Freight rates were furnished by the Division of Tariffs, Interstate Commerce Commission. Minimum weights of carloads subject to the rates below range from 12,000 to 14,000 pounds for single-deck cars and 18,000 to 23,000 for double-deck cars.]

From—	To—	Approximate distance.[1]	Rate per 100 pounds.	
			In single-deck cars.	In double-deck cars.
		Miles.	*Cents.*	*Cents.*
Pendleton, Oreg	South St. Paul, Minn.[2]	1,712	93	93
Do	South Omaha, Nebr	1,568	93	93
Do	Denver, Colo	1,159	93	93
Cheyenne, Wyo	South Omaha, Nebr	512	54.4	34
North Platte, Nebr	do	287	22.1	17.42
Denver, Colo	do	532	54.4	34
Do	Kansas City, Mo	667	54.4	34
Pueblo, Colo	do	635	.....	34
Pendleton, Oreg	Chicago, Ill.[3]	2,062	.....	108
Cheyenne, Wyo	do	1,007	81.6	51
Denver, Colo	do	1,024	81.6	51
South St. Paul, Minn.[2]	do	398	27	27
South Omaha, Nebr	do	496	25	23.5
Kansas City, Mo	do	454	25	23.5
Chicago, Ill.[3]	Buffalo, N. Y	540	18.9	18.9
Do	Pittsburgh, Pa	468	18.9	18.9
Do	Baltimore, Md	797	28.5	28.5
Do	Philadelphia, Pa	787	29.5	29.5
Do	New York, N. Y	908	31.5	31.5
Do	Boston, Mass	1,038	31.5	31.5

[1] Over a representative route, as shown on passenger-service schedules.
[2] Plus $2.50 per car switching from St. Paul to South St. Paul.
[3] When to or from Union Stock Yards, $2 per car in addition to Chicago rate.

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TRAIN SERVICE.—In reply to the question "Are cars furnished promptly?" 92.4 per cent of the special live stock and price reporters (Table 17) answered in the affirmative and 7.6 per cent in the negative. A larger percentage of negative replies was noted in some of the principal live-stock producing States than elsewhere.

The question "Is train service satisfactory?" was answered in the affirmative by 75 per cent of the correspondents, and in the negative by 25 per cent. The replies show a large proportion of negative answers in some of the States where live-stock production is a most important industry.

A summary of answers to the question "Is special stock train service operated through your shipping station?" shows that approximately one-half of the stations covered by the inquiry have such service and one-half do not.

TABLE 17.—*Railroad and market service, as reported by special live stock and price reporters, summarized by States.*

State.	Are cars furnished promptly?		Is train service satisfactory?		Special stock train service?		Railroad claims settled satisfactorily?		Market service satisfactory?	
	Yes.	No.	Yes.	No.	Yes.	No.	Yes.	No.	Yes.	No.
Alabama	9	1	7	2	4	5	1	3	2	1
Arizona	4	0	1	1	0	3	2	0	1	0
Arkansas	9	1	18	6	9	18	3	3	20	1
California	15	0	12	3	11	3	8	3	5	2
Colorado	23	0	18	6	19	4	17	2	13	1
Connecticut	3	0	3	0	0	3	1	2	0	0
Delaware	2	0	1	0	1	0	2	0	0	0
Florida	14	1	8	5	2	10	7	5	4	3
Georgia	17	1	13	2	1	13	6	4	4	1
Idaho	9	1	8	5	6	5	7	1	3	4
Illinois	27	2	42	6	22	23	34	22	57	15
Indiana	74	8	64	21	24	58	27	22	54	12
Iowa	89	22	71	36	73	33	53	42	65	26
Kansas	139	10	93	29	84	51	82	38	81	24
Kentucky	47	5	42	8	17	35	29	15	33	5
Louisiana	6	0	6	0	0	6	3	1	2	0
Maine			12	2	2	9	5	1	5	0
Maryland	6	0	5	1	1	6	3	0	4	1
Massachusetts	6	0	5	0	0	7	1	1	5	1
Michigan	42	5	25	18	10	36	13	21	34	2
Minnesota	48	1	37	8	19	23	26	13	24	7
Mississippi	16	0	12	2	4	10	7	4	7	0
Missouri	58	4	38	5	31	18	23	10	35	5
Montana	6	0	5	1	5	1	5	1	4	1
Nebraska	115	3	76	39	78	34	59	37	61	32
Nevada	5	1	5	0	2	3	1	0	2	0
New Hampshire	5	1	4	0	2	3	2	1	3	1
New Jersey	4	0	2	0	0	2	1	0	2	0
New Mexico	7	0	6	1	6	1	2	0	2	0
New York	25	3	23	1	9	16	9	5	12	3
North Carolina	7	4	7	5	4	9	5	3	3	3
North Dakota	47	3	35	10	34	17	16	20	39	4
Ohio	61	4	42	21	21	41	22	11	39	5
Oklahoma	41	1	32	9	21	20	24	12	30	10
Oregon	7	2	8	0	7	0	5	1	5	0
Pennsylvania	19	2	18	9	10	22	11	4	15	2
Rhode Island	0	0	1	0	0	1	0	0	0	0
South Carolina	8	3	9	1	1	10	3	3	3	0
South Dakota	40	1	23	7	26	7	7	4	27	2
Tennessee	28	4	23	5	10	17	14	3	6	0
Texas	47	0	54	20	41	34	45	25	46	13
Utah	10	0	7	2	7	2	5	2	5	0
Vermont	5	0	4	1	4	2	0	3	3	0
Virginia	30	1	19	9	14	13	11	5	19	2
Washington	9	0	6	1	2	5	4	1	3	1
West Virginia	17	3	12	7	4	11	5	6	11	4
Wisconsin	41	3	29	6	15	27	18	10	31	4
Wyoming	10	2	8	4	9	1	4	2	7	2
Total	1,257	103	999	325	672	678	638	372	836	210

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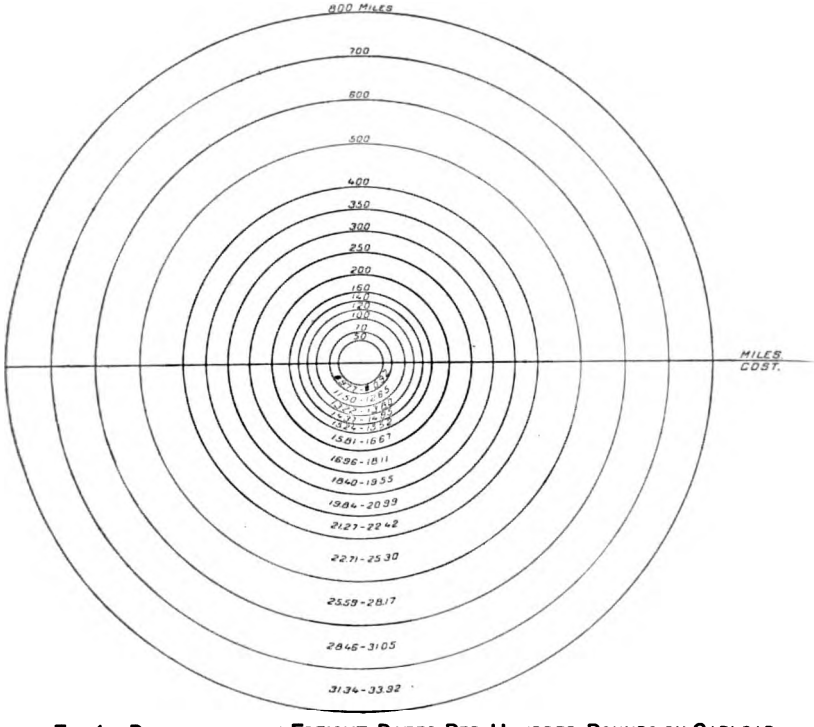
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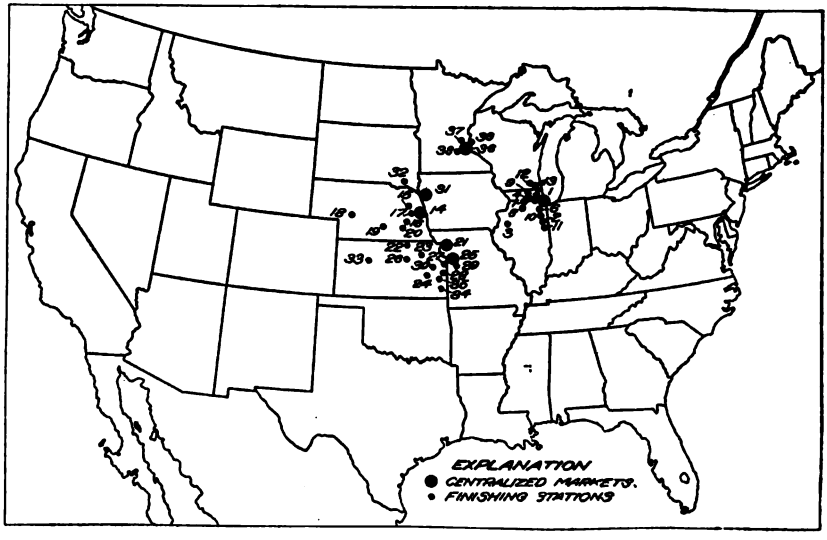

FIG. 1.—FINISHING-IN-TRANSIT STATIONS.

FIG. 2.—CENTRALIZED LIVE-STOCK MARKETS.

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LOADING AND BEDDING CARS.—The cost of loading live stock includes the labor involved and the price of bedding. Data furnished by the correspondents mentioned above indicate that bedding material is furnished and placed in the car in 35 per cent of the instances recorded; and in 45 per cent of the cases reported a charge is made for this service, varying from 25 cents to $2 per car. The kinds of bedding material and the relative extent to which they are used, as indicated by the replies in which they are mentioned, are shown in Table 18.

TABLE 18.—*Kinds of bedding used in shipping live stock and percentage of replies mentioning each.*

Kind of bedding.	Per cent.	Kind of bedding.	Per cent.	Kind of bedding.	Per cent.
Straw	24.7	Cinders	7.4	Pine straw	0.6
Sand	20.8	Shavings	6.9	Manure	0.4
Sawdust	18.7	Dirt	1.7	Fodder	.10
Hay	8.6	Gravel	1.6		
No bedding used	7.8	Coal	0.7		

A study of the cost of loading live stock indicates that the average cost of loading cattle in cars is approximately $1, hogs approximately $2, and sheep $1.50 per car. These figures represent the labor of loading and include feed only in the case of hogs. They do not include the expense of incidental repairs to cars or of inserting partitions.

The number of animals loaded per car has been computed from the number of head and number of cars of different classes of live stock received at various markets. The average numbers are shown in Table 19:

TABLE 19.—*Average numbers of animals per car received at different markets.*

Location of market.	Period covered.	Cattle.	Calves.	Hogs.	Sheep.	Horses and mules.
Birmingham, Ala.	January–March, 1916	44	.....	85	.....	.....
Chicago, Ill.	All of 1915	22	106	76	187	19
Denver, Colo.	.....do	33	105	77	261	35
Fort Worth, Tex.	.....do	30	88	83	159	18
Kansas City, Mo.	.....do	26	304	82	220	21
New York, N. Y.	January–March, 1916	18	77	180	204	21
Spokane, Wash.	.....do	24	.....	89	232	22

It will be noted that the number of cattle per car is greatest in the South and greater in the West than at middle Western and Eastern points. Variations in these figures on calves, hogs, and sheep doubtless are due partly to the use of double-deck cars, and for this reason direct comparisons are not possible; nevertheless the figures are of general interest.

FEEDING IN TRANSIT.—When the distance is such that the shipment to destination can not be made under 36 hours, according to the amended Federal 28-hour law, the animals must be unloaded, fed, and watered. The railroads which have the heaviest long-distance shipments provide feeding-in-transit stations for this purpose at intervals along their lines. The charges for care, feed, and water at

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these points run as high as $10 or $12 per car, with a general average of about $5 per car. For the most part, the railroads which do a small live-stock business are without regular feeding-in-transit stations; on these lines the shipper must make his own arrangements for feed and water. In such cases, the railroad makes no charge, and the cost of caring for the animals varies with the amount of feed and labor bought by the owner. A few of these railroads have stations where men are furnished to assist in the unloading, loading, and caring for the stock; 50 cents per car is the usual charge for such service, to which should be added the cost of the feed purchased by the owner.

In addition to the feeding-in-transit stations, finishing-in-transit points are found in the Middle West, near the centralized live stock markets. They usually are equipped with large, well-arranged stock yards, similar to those at the centralized markets. They are used both for finishing animals for advantageous marketing and as a place where animals may be kept in good condition while awaiting a favorable turn in the market. These stations are used principally for sheep and are an important factor in regulating their supply on the market.

An ordinary finishing station represents an investment varying between $300,000 and $400,000, and includes shed capacity for about 50,000 sheep, with open yard space for 20,000 to 30,000 more. In addition, there are usually from 1,000 to 2,000 acres or more of grass land fenced in small pastures for use during the grazing season. The rapid increase in the use of these yards has resulted in many cases in the addition of facilities for shed feeding, grazing, shearing, and dipping of stock.

Stay of stock at these stations varies from 48 hours to 90 days, with an average of approximately 20 days. The profits of the plant come from the sale of feed, the charge averaging from 90 cents to $1.25 per sheep for a 20-day feed, and between 5 cents and 6 cents per head per day for a shorter period. The charge usually made for grass is from 1½ to 2 cents per head per day.[1]

The accompanying map of the United States shows certain of the centralized markets and the locations of such of these finishing-in-transit stations as have come to the attention of this office. (Pl. IV, fig. 1.)

Loss and damage.—Claims for loss and damage in transit on the great volume of live stock business reach large amounts in the aggregate.

Twenty-seven railroads, aggregating about 35 per cent of the total owned mileage of the country, reported to this office their total claims paid on live stock during the fiscal year 1913–14. The total amount of these claims was $1,245,477.81, or 4.81 per cent of the revenue on this class of business. Thus it will be seen that during that period these railroads paid out almost 5 per cent of their live stock earnings for loss and damage. On the other hand, since the valuation in live stock contracts in 1913 and 1914 did not cover more than about half the value of the stock, the return was not equal to the loss, even if the shippers recovered full contract valuation.

[1] United States Congress (64th), House Document No. 855. Proceedings of the Conference Relative to the Marketing of Live Stock, Distribution of Meats and Related Matters (1916), p. 80. For additional information see pp. 21–26, 76–82.

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An actual count of dead stock removed from cars at Chicago as made by the Bureau of Animal Industry for a period of two years showed this class at that point to be 0.04 per cent of the receipts of cattle; 0.61 per cent of the calves; 0.19 per cent of the sheep; and 0.41 per cent of the hogs.

The Interstate Commerce Commission ordered all the railroads having a gross revenue exceeding $1,000,000 to report on the extent and causes of loss and damage claims paid by them on various commodities during the year 1914. The results of these special reports are included in the Twenty-ninth Annual Report of the Commission. Table 20 is computed from the reports on the causes of loss and damage claims paid on live stock.[1]

TABLE 20.—*Causes of loss and damage claims paid on live stock by railroads in 1914.*

Classification of loss.	Percentage of total live stock claims.	Classification of loss.	Percentage of total live stock claims.
Delays	38.76	Fire	1.57
Unlocated damage	21.14	Concealed damage	.11
Rough handling of cars	19.28	Robbery	.08
Wrecks	8.70	Improper ventilation	.02
Errors of employees	3.54	Concealed loss	.01
Unlocated loss	2.74		
Improper handling and loading	2.17	Total	100.00
Defective equipment	1.88		

The Interstate Commerce Commission does not undertake to trace the responsibility for the losses, but from Table 20 it would seem that 73.73 per cent of the total claims paid is chargeable to the transportation companies, 2.17 per cent to the shippers, and 24.1 per cent to either, according to circumstances.

As an indication of the variation in efficiency of railroads in the handling of live stock traffic, figures obtained by this office from the railroads show the amount of live stock claims paid to be as high as 19 per cent of the revenue in come cases, and in others less than 0.5 per cent. Table 21 shows the average claims paid per car of live stock handled by two of the principal live-stock-carrying railroads, whose reports show widely varying efficiency.

TABLE 21.—*Average claims paid per car of live stock hauled.*

Railroad.	Cattle.	Hogs.	Sheep.	Horses and mules.	All kinds.
Railroad No. 1	$0.64	$0.37	$0.55	$3.14	$0.61
Railroad No. 2	2.20	1.34	1.78	7.73	2.07

Of the replies to the question "Are railroad claims settled satisfactorily?" 63.2 were affirmative and 36.8 negative. The majority of the negative replies came from the principal live stock producing States.

[1] United States Interstate Commerce Commission. Twenty-ninth Annual Report (opposite p. 44).

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SHRINKAGE.—At present very little is known regarding the shrinkage of live stock in transit. The settlement of most railroad live stock claims involves shrinkage estimates, and freight charges at 85 per cent of the large centralized live stock markets are based upon sale weights minus a stated amount of shrinkage. The amounts of shrinkage allowed are practically uniform at all markets, but they are the result of trade custom and are not determined by an analysis of the factors involved.

The most extensive investigation of the shrinkage of live stock in transit that has yet been made was conducted by the Bureau of Animal Industry. The percentages of shrinkage in Table 22 were compiled from the results of this investigation.[1] The available figures for shrinkage of hogs and sheep are not based upon a sufficient number of shipments to warrant publication.

TABLE 22.—*Shrinkage of beef cattle in transit.*

Time in transit and class of cattle.	Shrinkage.[a]	Time in transit and class of cattle.	Shrinkage.[a]
Less than 24 hours:	*Per cent.*	From 30 to 48 hours:	*Per cent.*
Range cows	3.58	Cottonseed-meal steers	5.40
Mixed range cattle	2.14	From 36 to 72 hours:	
Mixed corn-fed cattle	3.91	Range steers	5.40
Mixed silage-fed cattle	2.05	Range cows	4.84
Less than 36 hours:		Mixed range cattle	3.88
Range steers	3.65	Over 72 hours:	
From 24 to 36 hours:		Range steers	5.47
Range cows	3.46	Range cows	3.96
Mixed range cattle	6.37	Mixed range cattle	7.00
Mixed corn-fed cattle	4.11	From 60 to 120 hours:	
Mixed silage-fed cattle	3.57	Beet-pulp cattle	5.40

[a] Based on live weight at origin and "filled" weight at market.

In a concise and pertinent statement of the problems of live-stock transportation from a railroad man's point of view recently made by the general live-stock agent of one of the prominent western railroads, at the hearing conducted by this office,[2] the following subjects were especially emphasized: (1) Unequal distribution of cattle receipts at market points; (2) compliance with 28 to 36 hour Federal statute; (3) law respecting continuous duty of train crew; (4) overloading; (5) operating stock pick-up trains on time-card schedule.

CENTRALIZED LIVE-STOCK MARKETS.

The largest single factor in the marketing of meat animals in the United States is the system of centralized live-stock markets, which has no counterpart in any of the other live-stock-producing countries of the world. Its development has been due primarily to the fact that the live-stock industry is developed mainly in the central and western parts of the country, while one-half the population is in the manufacturing region east of the Mississippi and north of the Ohio and Potomac Rivers. The exportation of meat animals and meat products from Atlantic ports also has contributed largely toward the centralization of live-stock markets at points intermediate between these ports and the areas of production.

[1] Ward, W. F., The Shrinkage in Weight of Beef Cattle in Transit. U. S. Dept. of Agr. Bul. No. 26, 1913, pp. 73, 74.

[2] United States Congress (64th), House Document No. 855. Proceedings of the Conference Relative to the Marketing of Live Stock, Distribution of Meats and Related Matters (1916), pp 18-21.

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Other factors which have exerted a like influence are—

Rapid extension of railroads, facilitating the shipment of stock from grazing and feeding areas; the application of refrigeration to the shipment of fresh meats, cutting down the cost of distribution by the reduction of bulk and shrinkage, besides making it possible to deliver meats to more distant points and in better condition than when shipped on foot; the invention of the tin can and its adaptation to the preservation of meats and meat products in such form as to permit their convenient carriage in perfect condition to the Equator or the Poles; scarcity of labor in live-stock-producing sections and concentration of laboring classes at railroad centers, thus attracting slaughtering industries to the latter; and demand in consuming centers for high-grade meats, attractively dressed and carefully prepared in sanitary plants under official inspection.[1]

A corollary of the unprecedented development of our centralized markets which generally is regarded as of vital importance is the gradual concentration of ownership and control of the stockyards, terminal facilities and other equipment and related interests into the hands of the small group of packers who purchase the bulk of the meat animals sold at these markets. The nature and extent of this factor in the situation have been stated by Mr. A. E. de Ricqles, chairman of the committee on stockyards, of the American National Live Stock Association, at a hearing conducted by this office, as follows:[2]

The first thing that one meets in looking into this subject is the fact that the ownership of practically all the stockyards companies, all the big packing houses, the cattle loan companies, stockyard banks, rendering works, and similar institutions found at stockyards, are owned and controlled by four or five individuals; and as these stockyards are what establish the price of live stock in the United States, it follows quite naturally that these few individuals who own these institutions are in position to control. For a number of years these individuals—and it is no harm to mention their names, for they are so familiar to all of us that they come into our minds immediately, namely, Armour, Swift, Morris, Cudahy—were satisfied with the packing-house business and limited their operations to slaughtering and selling meat animals and their products; however, within the past dozen years they have been acquiring the stockyard companies, establishing cattle loan companies, and other market enterprises that, as a matter of fact, are distinct and separate from the slaughtering business. They own stockyards at Kansas City, South Omaha, East St. Louis, St. Joseph, Sioux City, St. Paul, Oklahoma, Fort Worth, Portland, and Denver.

It seems reasonable that the company buying your product on the open market should not be the owner of the facilities you use to prepare the same for its purchase; or that the man who sells your product should not be indebted and under obligations to the man who buys it; or that a stockman who borrows money should not borrow money for feeding from the man he must sell to.

For controlling prices and increasing the power of price making, the ownership of a stockyards by a packing house is one of the most complete means. For example, a live-stock commission firm established at a stockyards rents its office from the stockyards company, has its pens allotted to it by the stockyards company, and all the little services necessary for the live stock that such a commission firm may sell has to be done by the stockyards company. That is the province of the company; however, if the yard company fails to do these things in a good and workmanlike manner and is careless and does not keep its pens clean or its offices in good condition, or fails to furnish good hay or enough men to yard the cattle or is dilatory, in event of such a yard company being owned by some outside interest the commission company can go and demand from such a yard company the immediate correction of such poor service and abuses, and is listened to. But if the owners of the yard company are the same people who buy the cattle every day from the commission company and who finance the commission firm through a cattle-loan company or bank, the situation becomes very different, for the commission merchant must be on good terms with the people who buy from him, and he fears if he is not friendly with them that they may discriminate against him. So he hesitates to object when

[1] Hall, L. D., Great Central Markets for Live Stock and Meats. Address delivered at Second Pan American Scientific Congress, Section III, subsection 7, Washington, D. C., Dec. 30, 1915.

[2] United States Congress (64th), House Document No. 855. Proceedings of the Conference Relative to the Marketing of Live Stock, Distribution of Meats and Related Matters, 1916, pp. 46, 47.

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things do not go just as they should, and is therefore not such a good salesman for his customer, nor is he able to do so much for him as if he was unhampered and free to go to the stockyards manager and ask for improvement in service and otherwise. This is just an explanation of one situation that to-day exists at most of the markets in the United States, and it is realized not only by the commission men and buyers in the yards, but it is understood by the stockmen, and it is becoming intolerable.

The principal remedies which have been advanced and advocated for the improvement of these conditions were summarized by Mr. T. W. Tomlinson, secretary of the American National Live Stock Association, at the above-mentioned hearing, as follows:[1]

(1) A more even distribution of receipts on five days of the week. This would prevent delays at terminals and enable the business to be transacted at less expense.
(2) A weekly publication by the Government of data as to the meat supply on hand.
(3) The establishment of public abattoirs in connection with public stockyards.
(4) Slaughterers to relinquish so far as possible their interest in and control of stockyards and other instrumentalities involved in the marketing of live stock.
(5) Commission houses not to serve as both seller and buyer of the same stock, and to sell direct to country purchasers.
(6) Federal and State supervision of the methods and practices at the central markets.
(7) A greater cooperation toward the end of securing unrestricted competition.

The limits of this report preclude a detailed consideration of various important problems pertaining to the centralized markets. For example, the congestion of live stock receipts on two days of the week at some of the larger markets is a condition which all agree is detrimental to the interests of everyone concerned. Computation on daily receipts at Chicago in 1915 show that about 42 per cent of the cattle were received on Mondays, 10 per cent on Tuesdays, 33 per cent on Wednesdays, 10 per cent on Thursdays, 4 per cent on Fridays, and less than 1 per cent on Saturdays.[2] In other words, more than three-fourths of the cattle received at that market arrive on Mondays and Wednesdays. A similar, though less marked, condition obtains with respect to hogs and sheep. The average proportion of hog receipts on the different week days at Chicago in 1915 was as follows: Monday 24, Tuesday 14, Wednesday 22, Thursday 17, Friday 15, and Saturday 8 per cent. Sheep receipts on Monday averaged 24 per cent, Tuesday 17, Wednesday 23, Thursday 19, Friday 13, and Saturday 4. For calves, the averages were: Monday 16, Tuesday 33, Wednesday 24, Thursday 20, Friday 6, and Saturday less than 1 per cent. The heavy traffic on Mondays and Wednesdays as shown by these figures results in delays, price fluctuations, and other disadvantages incident to the handling of such a large volume of traffic in such a limited time.

Statements recently obtained by the Department from 1,046 correspondents in all parts of the United States relative to market service, such as yardage, feeding, and commission, indicate that 80 per cent of the total number who replied consider the service satisfactory, while 20 per cent replied in the negative. (See Table 17.) It is significant, however, that in some of the principal stock-feeding States, especially Iowa, Kansas, and Nebraska, about one-third of the replies were unfavorable.

[1] United States Congress (64th), House Document No. 855. Proceedings of the Conference Relative to the Marketing of Live Stock, Distribution of Meats and Related Matters, 1916, p. 17.
[2] United States Department of Agriculture, Bureau of Crop Estimates, Monthly Crop Report, vol. 2, No. 1 (1916), p. 6.

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TABLE 23.—*Estimated numbers of animals slaughtered in the United States in comparison with receipts at stockyards, 1915.*

Kind of animals.	Number of stockyards.	Number of animals received.	Total number slaughtered in United States.[1]	Stockyard receipts as a percentage of total number slaughtered in the United States.
Cattle and calves	43	14,025,763	19,012,435	75
Hogs	42	35,130,255	59,099,622	60
Sheep	43	17,139,166	14,022,649	120

[1] The numbers of animals slaughtered in 1915 were computed from the total numbers of animals reported by the Bureau of Crop Estimates Jan. 1, 1915, and the percentage of each class of animals slaughtered in 1909 according to the Thirteenth Census.

The numbers of animals reported in the receipts of the stockyards are materially larger than if the animals actually appearing at these markets were counted but once. This duplication is due largely to the movement of thin animals back to the country as stockers and feeders, which are returned to the markets after being fed or grazed; and to the feeding of animals in transit at some of the far western and eastern markets. Some duplication also results from the forwarding of animals from the first market to which they were consigned, to some other market, in the hope of receiving better returns. The necessary allowance for these factors is greatest in the case of sheep and is least with respect to hogs. Notwithstanding these factors, the large proportion of the total slaughter shown above indicates that the centralized live stock markets constitute the predominating system in this country.

Besides the concentration of live stock for slaughtering purposes, the centralized markets are the medium through which a large proportion of stocker and feeder animals are bought. From data collected by means of questionnaires sent to correspondents of the Bureau of Crop Estimates, it has been estimated that 55 per cent of the stocker and feeder cattle purchased are bought in the district in which they are fed or grazed, 27 per cent at the centralized markets, and 18 per cent in the country, other than locally. The figures for stocker and feeder sheep indicate 47 per cent to be bought locally, 39 per cent at the centralized markets, and 14 per cent at other points.

Public stockyards are operated at numerous points in most of the sections of the United States. A thorough canvass of these establishments has been made, and monthly reports of live stock receipts and shipments are being furnished to this office by stockyards in the 53 cities shown in Plate IV, figure 2. Detailed investigations relative to facilities, organization, and charges also have been made in person at 36 of these places, including all of the larger markets.

CHARGES FOR MARKET FACILITIES AND SERVICE.

The terminal facilities at all the centralized live stock markets which do a large volume of business are operated either by a traffic department of the stockyard company or by a terminal railroad company. The stockyard companies at all of the large markets are either directly or indirectly owners and operators of the terminal equipment. At the smaller markets where this is not true the

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facilities are owned and operated by one or more large railroad companies, or by a joint holding or joint operating company composed of two or more of the railroads entering the city in which the market is located.

At almost all of these markets the terminal companies make a switching charge for the use of the terminal facilities. This fee is paid finally by either the railroad or the shipper of stock. The amount of the terminal switching charge usually paid by shippers is $2 per car. In addition to this charge, some of the railroads at certain of the markets pay the terminal company a trackage fee, but in all of the instances reported to this office these charges are absorbed by the railroads.

Most of the large markets have an unloading and loading charge averaging approximately 50 cents for each service, but this in the majority of cases is assessed only on through shipments stopped for feed and water and generally is absorbed by the railroads.

Dock men of the stockyard company unload the stock and place the animals in pens adjacent to the unloading platforms. The stockyard company also is supposed to drive the animals to the pens of the commission companies, but in practice the commission firms often do their own yarding. The maximum, minimum, and usual charges made for this service are shown in Table 24.

TABLE 24.—*Stockyards: Yardage charges per head.*

Kind of animal.	Maximum.	Minimum.	Usual.
Cattle	$0.45	$0.06	$0.25
Calves	.25	.06	.10
Hogs	.08	.03	.08
Sheep	.06	.02	.05

The minimum yardage charge on every class of stock, except calves, occurs at yards owned and operated by railroad companies; and besides the per head yardage charges here given, a few of the markets have a maximum yardage charge based upon a carload. The usual charge at those markets which quote a car rate for yardage is $8 per car on cattle, calves, and hogs, and $10 on sheep.

The range of charges for feed at the various markets is presented in Table 25.

TABLE 25.—*Stockyards: Feed charges.*

Kind of feed.	Maximum.	Minimum.	Usual.
Corn, per bushel	$2.00	$1.00	$1.25
Oats, do	1.00	.75	.75
Wheat, do	1.50	1.50	1.50
Barley, do	1.20	1.20	1.20
Native hay, per hundredweight	2.00	1.00	1.50
Timothy hay, do	1.75	1.25	1.50
Prairie hay, do	1.25	1.00	1.00
Clover hay, do	1.50	1.25	1.50
Alfalfa hay, do	1.50	1.00	1.25
Mixed hay, do	1.50	1.25	1.50
Straw, do	1.50	.80	1.00

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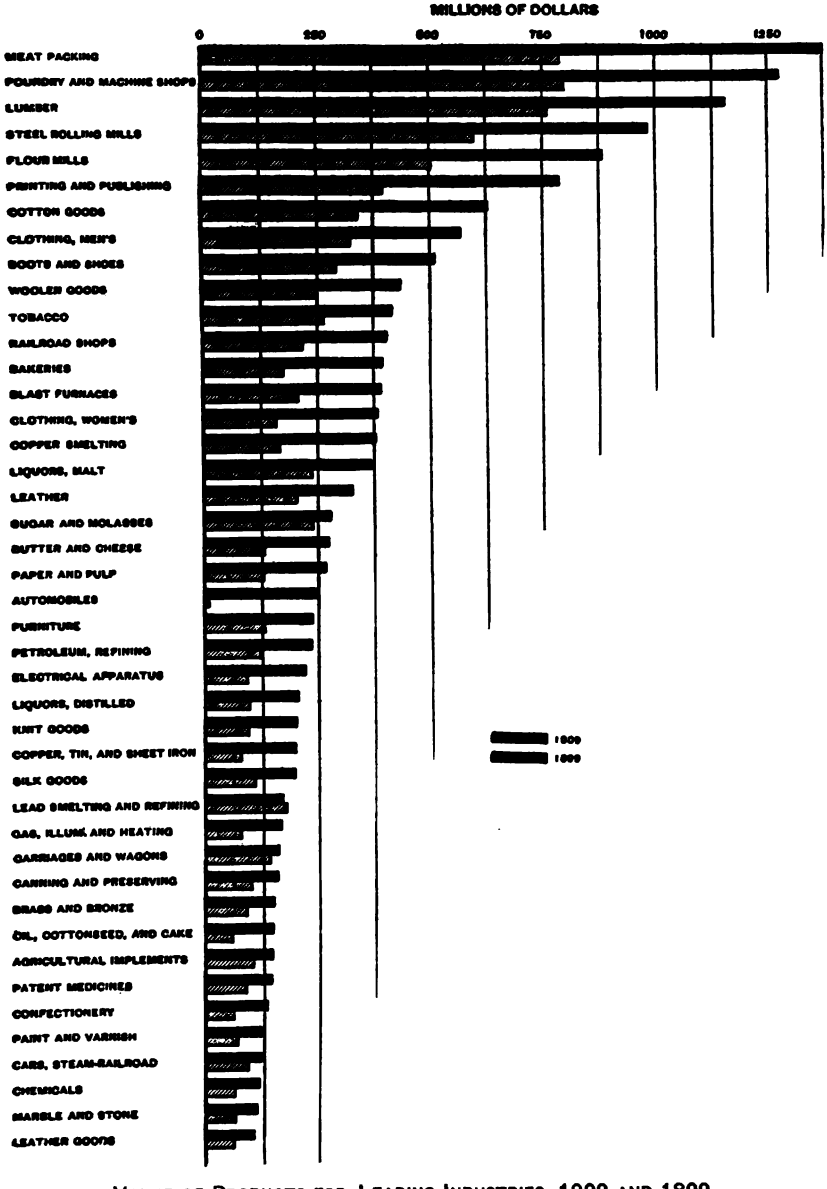

VALUE OF PRODUCTS FOR LEADING INDUSTRIES, 1909 AND 1899.

From United States Census, Bureau of, Thirteenth Census of the United States, Vol. 8, Manufactures. General report and analysis, p. 44.

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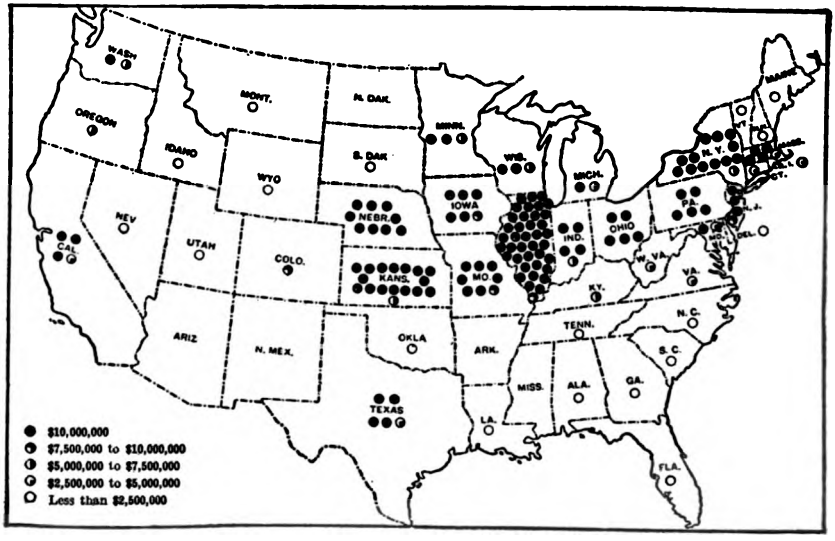

FIG. 1.—VALUE OF PRODUCTS OF WHOLESALE SLAUGHTERING AND MEAT PACKING BY STATES, 1909.

From United States Census, Bureau of, Thirteenth Census of the United States, Vol. 10, Manufactures. Reports for principal industries, p. 337.

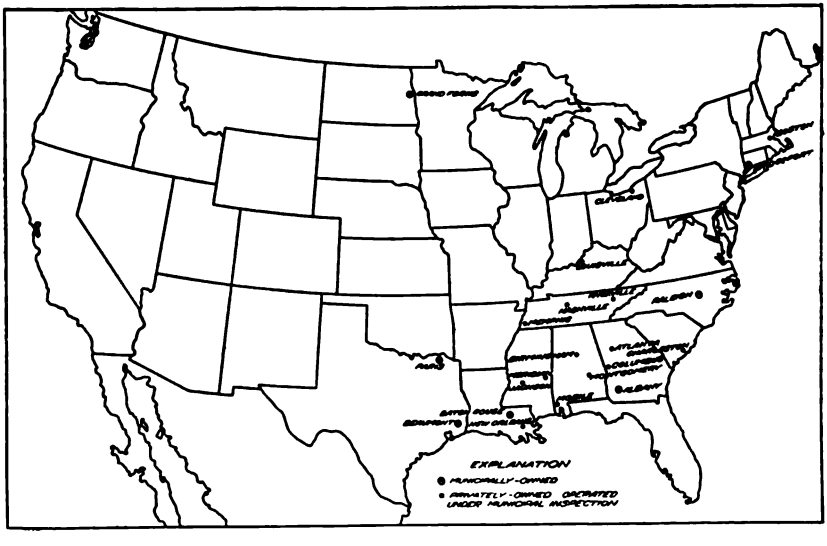

FIG. 2.—MUNICIPAL ABATTOIRS.

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Commission charges for selling stock are shown in Tables 26, 27, and 28.

TABLE 26.—*Stockyards: Commission charges per head.*

Kind of animal.	Maximum.	Minimum.	Usual.
Cattle	$1.00	$0.50	$0.60
Calves	.35	.10	.25
Hogs	.25	.10	.20
Sheep	.20	.10	.10

This table does not cover the commission charges of all markets, owing to variations in the basis of such charges in some instances. The charges for selling cattle at one market are based upon the value of the animal, being 50 cents per head of $20 value and under, 75 cents per head for a value between $20 and $35, and $1 per head for over $35. At three markets the commission charge on hogs is 2 per cent of the amount of the gross sales, while at a fourth market the charges are from 35 to 50 cents per head, according to the number sold. The commissions for selling sheep are as shown in Table 26, with the exception of one market, where the charges vary from 15 to 25 cents per head.

TABLE 27.—*Stockyards: Commission charges for single-deck car.*

Kind of animal.	Maximum.	Minimum.	Usual.
Cattle	$20.00	$6.00	$12.00
Calves	20.00	6.00	12.00
Hogs	20.00	5.00	8.00
Sheep	20.00	5.00	8.00

TABLE 28.—*Stockyards: Commission charges for double-deck car.*

Kind of animal.	Maximum.	Minimum.	Usual.
Calves	$36.00	$10.00	$18.00
Hogs	30.00	10.00	12.00
Sheep	30.00	10.00	12.00

The charges quoted for selling single and double deck cars of live stock apply to those containing the normal number of animals.

Five markets have a fee for weighing stock. Three of these charge 10 cents per head on cattle, one charges 25 cents per car on all kinds of stock, and one charges 5 cents per head on cattle, 1 cent on hogs, and ½ cent on sheep. Four of the markets having such charges are located in the eastern part of the United States and one in the South.

An inspection for the purpose of determining the dockage in weight on all sales of hogs involving "stags" and "piggy" sows is made by representatives of the live stock exchange. The usual fee is 15 cents per car, although the charges at different markets range by fives from nothing to 25 cents per car. The usual maximum dockage which is allowable is 80 pounds for "stags" and 40 pounds for "piggy" sows. At some markets hogs which have an abnormal development or diseased condition of some part are docked from 20 to 40 pounds.

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Wholesale Slaughtering and Meat Packing.

The wholesale slaughtering and meat-packing industry constitutes the chief outlet for market stock suitable for slaughter. Its close relation to the large live-stock centers is shown by its geographical distribution as to value of products (Pl. VI, fig. 1) in comparison with the location of stockyards points illustrated by Plate IV, figure 2.

The most extensive development of meat packing is found in the same States which contain the principal stockyards. These stockyards are located at Chicago and Missouri River points. The prominence of the industry in Massachusetts, New Jersey, New York, and Pennsylvania, as shown by the map, is due largely to the shipment of live animals from western markets for slaughter at eastern cities. The value of packing-house products in 1909[1] reported from six of the principal States was as follows: Illinois, $389,594,906; Kansas, $165,360,516; New York, $127,130,051; Nebraska, $92,305,484; Missouri, $79,581,294; Iowa, $59,045,232. The corresponding figures for 1914[2] are: Illinois, $485,362,180; Kansas, $151,647,123; New York, $144,036,162; Nebraska, $104,503,333; Missouri, $91,608,121; Iowa, $74,171,865. Slaughtering and meat packing ranks first in value of products among all the manufacturing industries of the United States. This fact is strikingly shown by Plate V.

The growth of the industry during recent decades is indicated by the increase in value of products as set forth by the following figures:

Table 29.—*Value of products of wholesale slaughtering and meat-packing establishments in the United States.*[a]

Year.	Value of products.	Year.	Value of products.
1889	$564,667,035	1909	$1,355,544,431
1899	788,367,647	1914	1,651,765,424
1904	922,037,528		

[a] Figures for 1889, 1899, and 1904, from United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910; Manufactures, 1909. Statistics for the Slaughtering and Meat-Packing Industry, pp. 4, 16. Revised figures for 1909, and figures for 1914 from preliminary report of United States Census Bureau on the Slaughtering and Meat-Packing Industry for 1914 (July, 1916).

The number of wholesale slaughtering and meat-packing establishments in 1914, as reported by the Census Bureau,[2] was 1,279. Every State but North Dakota was represented. Establishments under Federal meat inspection December 31, 1914, numbered 824, or 65 per cent of the total. These plants were located in 230 cities in all but three of the States—Arizona, Montana, and New Mexico. The present number of federally inspected establishments is 799, and the only States not included are Montana and New Mexico.

Four principal classes of plants are engaged in different branches of the wholesale slaughtering and meat-packing industry, viz, those primarily engaged in (1) both slaughtering and meat packing, (2) meat packing, (3) slaughtering, (4) sausage manufacture. In the

[1] United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910, Manufactures, 1909. Statistics for the Slaughtering and Meat-Packing Industry, p. 6.

[2] United States Census, Bureau of, Preliminary Report on the Slaughtering and Meat Packing Industry for 1914. (July, 1916.)

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Census reports for 1909 the two first-named groups were combined, thus making three classes of establishments. Forty per cent of the establishments were engaged in slaughtering and meat packing, 35 per cent in slaughtering not including meat packing, and 25 per cent in the manufacture of sausage. Of the total value of products 88 per cent was reported by slaughtering and meat-packing establishments, 11 per cent by those doing slaughtering not including meat packing, and 1 per cent by sausage manufacturers.[1] Of the 1,279 establishments enumerated in 1914, 468, or 37 per cent, were engaged in slaughtering and meat packing, 630, or 49 per cent, were engaged in slaughtering not including meat packing, and 181, or 14 per cent, were engaged in packing only.

Of the federally inspected meat establishments in 1914, 325, or about 40 per cent, were engaged in slaughtering, and most of this number also conduct meat packing. The remainder includes, in addition to establishments engaged primarily in slaughtering, meat packing or sausage manufacture, numerous branch wholesale distributing houses connected with the larger packing concerns, and some other wholesale markets. These houses conduct processing, such as curing and smoking of meats, to be sold interstate. Besides these inspected establishments there are many branch houses and other wholesale meat concerns which do more or less processing and in some cases slaughtering for intrastate trade, but, not being engaged primarily in either of those branches, they are not included in the foregoing figures. Some of the largest packing companies, for example, have from 200 to 425 branch houses each, located in cities throughout the United States. The distribution of fresh beef from large packing plants through their branches is illustrated by the itemized accounts on lots 3, 5, 7, 8, and 9 (pp. 78 to 94), from which the following summary is presented (Table 30):

TABLE 30.—*Wholesale distribution of actual lots of beef.*

Lot No.	Number of cattle.	Where slaughtered.	Where distributed.
3	31	Chicago, Ill.....	Boston, Lynn, Mass.; Providence, R. I.; New York, N. Y.; Dover, N. J.; Wilmington, Del.
5	100	Kansas City, Kans.....	Tenth Avenue and Westchester, New York City; Sixth Avenue, and Wallabout Market, Brooklyn, N. Y.; Utica, Schenectady, Syracuse, N. Y.; Jersey City, Trenton, Newark, N. J.; Cleveland, Akron, Ohio; St. Paul, Minn.; Kansas City, Mo.
7	24	Portland, Oreg.....	Tacoma, Seattle, Spokane, Wash.; Portland, Oreg.
8	28	East St. Louis, Ill.....	Indianapolis, Fort Wayne, Ind.; Detroit, Mich.; Wheeling, W. Va.; Baltimore, Md.
9	27	Fort Worth, Tex.....	Dallas, Beaumont, San Antonio, Fort Worth, Tex.; New Orleans, La.; Memphis, Chattanooga, Tenn.; Louisville, Ky.; Atlanta, Savannah, Ga.; Norfolk, Richmond, Va.; Scranton, Pa.

Another important factor in the wholesale distribution of meats is the car-route or "peddler-car" system operated by the larger packers and some of the smaller ones. This system consists of the shipment to small cities and towns of packing-house products in refrigerator cars which are run on a regular schedule, usually weekly, and making one or more stops daily at designated places on the line. The routes are covered by traveling salesmen. One of the largest packing con-

[1] United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910; Manufactures, 1909. Statistics for the Slaughtering and Meat-Packing Industry, p. 5.

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cerns reports that it supplies 25,000 cities and towns in this way. Five to eight route cars a week are stopped at many points which obtain their wholesale meat supply from packing centers. The extent of the branch house and car-route trade also is indicated in part by the numbers of beef and refrigerator cars operated by the largest packers (Table 31):

TABLE 31.—*Beef and refrigerator cars owned and controlled by large packing interests, January, 1913.*[1]

Establishment.	Cars owned.	Establishment.	Cars owned.
No. 1	[2] 14,447	No. 6	515
2	6,767	7	233
3	2,111	8	28
4	1,576	9	25
5	1,544	10	9

[1] Interstate Commerce Commission Investigations, covered by Docket No. 4906.
[2] An official of this company states that about 7,000 of its refrigerator cars are used in the meat trade.

The total number of refrigerator cars reported in the United States in 1913 was in excess of 100,000. Of this number, about 38,000 were under private as distinguished from railroad ownership, and about 17,000 belonged to companies controlled by the railroads.[1] Thus about two-thirds of the privately owned refrigerator cars were controlled by the four principal packers, and nearly one-half were used chiefly in the meat trade.

The relative importance of the different classes of meat animals handled in wholesale slaughtering and meat-packing establishments is shown by the following comparison, which includes meats and other materials purchased by such establishments.

TABLE 32.—*Value of animals, meats, and other materials purchased by wholesale slaughterers and packers, 1909.*[a]

Animals and materials purchased.	Cost.[b]	Per cent of total cost.
Beeves	$392,127,010	32.60
Calves	25,030,014	2.08
Sheep and lambs	59,924,931	4.98
Hogs	483,383,848	40.19
Goats and kids	121,230	.01
All other animals	138,648	.01
Total animals	960,725,581	79.87
Dressed meat [c]	93,409,286	7.77
All other materials [c]	148,692,917	12.36
Total	1,202,827,784	100.00

[a] United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910; Manufactures, 1909. Statistics for the Slaughtering and Meat-Packing Industry, p. 13.
[b] Preliminary reports of the United States Bureau of the Census for 1914 (July, 1916), show cost of animals as follows:

Beeves	$490,108,203
Calves	27,623,448
Sheep and lambs	84,783,721
Hogs	597,097,518
Goats and kids	29,345
All other animals	2,178,250
Total	1,201,820,485

[c] A considerable part of these items doubtless consists of interestablishment shipments, in which case duplication of costs is represented by the figures.

[1] White, G. C., Improved Transportation Service for Perishable Products. Address delivered before cond Pan-American Scientific Congress, Washington, D. C., Dec. 31, 1915.

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A further comparison of the different classes of animals utilized by packing concerns is afforded by the following data from the Thirteenth Census and from a preliminary report of the United States Bureau of the Census for 1914 (Table 33):

TABLE 33.—*Numbers, weights, and yields of cattle, calves, sheep, and hogs purchased by wholesale slaughtering and meat packing establishments.*

Class of animals.	Number.	Weight on hoof.	Average weight on hoof.	Weight dressed.	Average weight dressed.	Average dressed yield.
1909.[1]		*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Per cent.*
Beeves	8,114,160	8,265,991,836	1,019	4,409,718,922	543	53.29
Calves	2,504,728	419,604,080	168	262,315,076	105	62.50
Sheep and lambs	12,255,501	987,566,521	81	496,640,869	41	50.61
Hogs	33,870,616	6,856,832,417	202	5,201,902,778	154	76.24
1914.[2]						
Beeves	7,149,042	7,076,145,687	989	3,786,382,167	530	53.59
Calves	2,019,004	337,565,316	167	206,311,127	102	61.07
Sheep and lambs	15,951,860	1,259,595,728	79	629,723,014	39	49.36
Hogs	34,441,913	7,277,670,937	211	5,476,236,776	159	75.35

[1] United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910, Manufactures, 1909. Statistics for the Slaughtering and Meat-Packing Industry, p. 13.
[2] United States Census, Bureau of, Preliminary report on the Slaughtering and Meat-Packing Industry, 1914 (July, 1916).

Computations from the figures for 1914 show that approximately 54 per cent of the total dressed weight of meat handled by the establishments in question consists of pork, 38 per cent beef, 6 per cent mutton, and 2 per cent veal. The percentages of live weight obtained as dressed yield (right-hand column) are of interest as an indication of the average grade of stock handled by wholesale slaughterers and meat packers. Corresponding data from the report of the Twelfth Census (1900) give the following yields: Cattle, 54.5; calves, 63.8; sheep and lambs, 51.2; and hogs, 78 per cent.[1] The striking similarity in the tendency toward reduced relative yields is attributed chiefly to the marketing of meat animals at earlier ages. In only one instance is the percentage of dressed yield greater in the later year, viz, the difference between the dressed yield of beeves for 1909 and 1914 is 0.3 per cent.

[1] See Part I of this series of reports, p. 137.

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The products of the slaughtering and meat packing industry as reported for 1914 by the Bureau of the Census, were valued as follows (Table 34):

TABLE 34.—*Value of products of slaughtering and meat packing in the United States.*[1]

Product.	Pounds.	Value.	Per cent of total value.
Fresh meat:			
Beef	3,658,333,660	$421,296,794	25.83
Veal	194,698,880	26,299,446	1.61
Mutton, lamb, goat, kid	629,232,690	74,675,627	4.58
Pork	1,877,099,071	226,535,734	13.87
Cured meat:			
Beef	91,571,753	14,395,316	.88
Pork	2,929,309,741	393,605,600	24.13
Canned goods	160,798,955	26,417,624	1.62
Sausage	509,151,311	68,195,322	4.18
Lard	1,119,188,675	120,414,007	7.38
Lard compounds and substitutes	396,397,950	33,037,467	2.03
Oleo oil	[2]16,501,585	11,925,832	.73
Other oils	[2]6,715,497	4,009,602	.25
Tallow and oleo stock	209,614,135	13,732,756	.85
Stearin	30,091,991	2,752,421	.17
Oleomargarine	60,387,881	8,818,557	.54
All other products[3]	.....	185,076,874	11.35
Total	11,889,093,775	1,631,189,179	100.00

[1] United States Census, Bureau of, Preliminary Report on the Slaughtering and Meat-Packing Industry for 1914 (July, 1916).
[2] Gallons.
[3] Includes value of baked beans, confectionery, fertilizers, fertilizer materials, glue, head cheese, hides and skins, hog hair, ice, meat puddings, peanut butter, preserves, sausage casings, scrapple, wool, etc., and amount received for slaughtering and refrigeration for others.

Summarizing the proportions of the various products in the order of their importance, it is found that approximately 46 per cent of the total value represents fresh meats, 25 per cent cured meats, 7 per cent lard, 4 per cent sausage, 2.5 per cent various oils and fats, 2 per cent lard compounds, and less than 2 per cent canned goods.

The ratio of the cost of animals and other materials to the value of products is greater in the slaughtering and meat packing industry than in most other manufacturing lines, owing largely to the comparatively simple processes of preparation involved. The ratios shown by census reports are summarized in Table 35. Figures for 1914 are not yet available.

TABLE 35.—*Comparison of cost of materials and value of products of wholesale slaughtering and meat packing.*[1]

Year.	Cost of materials.	Value of products.	Ratio of materials to products.
			Per cent.
1889	$482,907,381	$564,667,035	85.5
1899	685,310,099	788,367,647	87.0
1904	811,425,562	922,037,528	88.0
1909	1,202,827,784	1,370,568,101	87.8

[1] United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910, Manufactures, 1909. Statistics or the Slaughtering and Meat-Packing Industry, p. 5.

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The nature of the resources of some of the largest establishments engaged in wholesale slaughtering and meat packing is indicated, in a general way at least, by their annual financial statements. While it would be difficult to determine the optimum proportions of the total resources which should be invested in physical equipment and operating capital, respectively, and although these proportions must vary in accordance with the organization and extent of the business, yet an analysis of the statements of some of the most successful concerns should be of interest and significance.

The total resources of the five largest meat-packing corporations in the United States, as given in their annual statements for the last fiscal year, ranged from approximately $39,000,000 to $207,000,000. The proportion of the total resources invested in land, buildings, machinery, and other equipment, as computed from these statements, varied from 25 to 28 per cent, excepting in one of the smaller concerns whose account on these items amounted to 42 per cent of its resources. Accounts receivable and bills receivable made up from 12 to 29 per cent of the total resources, being about 27 and 29 per cent, respectively, for the two largest corporations and from 12 to 16 per cent for the three smaller ones. The above figures on physical equipment included the refrigerator car lines of the various packers, which represented approximately 4 to 5 per cent of the total resources. The merchandise, supplies, and materials accounts made up from 19 to 36 per cent of the resources, being from 21 to 23 per cent in the case of the two largest and one of the smaller corporations and 37 per cent in the smallest one. The amount of cash on hand was from 4 to 7 per cent of the assets, being approximately 4 per cent in the two largest concerns and approximately 7 per cent in the two smallest ones. This indicates that approximately one-fourth of the resources of the two largest packing companies represented real estate and physical equipment, bills and accounts receivable, and merchandise and supplies, respectively; while in the three corporations next in size, the physical equipment and real estate account averaged about one-third of the resources, accounts and bills receivable about one-seventh, and merchandise and supplies about one-third. Considered in connection with similar figures representing small local packing plants (p. 58) this summary will serve as a general indication of the relatively large proportion of operating capital to physical equipment required in the wholesale meat-packing business.

Net earnings on net capital investment, as computed from the financial statements of these corporations for the fiscal year 1915, varied from 4.01 to 11.66 per cent. The net capital investment refers to the sum of the capital stock and surplus; and the net earnings on which the foregoing percentages are computed consist of net profits less interest, taxes, depreciation, and administrative expense. Although taken from the published statements of the corporations in question without further verification, the figures are of general interest and significance in this connection.

It is interesting to note also that the various corporations rank in the same order with respect both to total resources and to per cent age of net earnings on net capital investment, indicating that the larger the volume of business the more profitable the industry has been. To what extent this advantage on the part of the larger companies is due to their operations in other countries it is impossible to state

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from the data at hand, but it is understood that this factor was an important one during the fiscal year in question.

The surplus accounts shown in the last annual statements of these five corporations were as follows in the order of their total resources: $45,850,000; $98,733,116.73; $7,514,062.17; $29,510,270.51; and $6,050,270.50, respectively. Although these amounts are not directly comparable, owing to differences in the periods of time they represent, and differences in the financial policies of the various concerns, and in the products other than meats which some of them handle in large volume, nevertheless the surplus shown in proportion to total resources in each instance indicates that the large meat-packing and allied industries have been highly profitable during the comparatively short period since their organization.

Definite conclusions relative to the aggregate profits that have been made directly and indirectly from the packing business would require more comprehensive and thorough investigations than yet have been conducted. Such investigations would have to include not only a study of all the elements of cost and profit in the packing business proper but also those involved in all the allied industries, including the relation of individual interests to those of corporations engaged in the industry, and the foreign as well as domestic operations of American packing concerns.

Comprehensive and fully confirmed figures on the cost of operation in the meat-packing industry are not available, but the following data afford an approximate index to certain phases of the industry. Table 36 shows the items entering into the plant expense of the beef department in one of the larger packing houses at Chicago. This statement covers the buying of the cattle, slaughtering, dressing, chilling and loading the beef on refrigerator cars for shipment to branch houses. It represents the packing company's account on one of its larger plants for one month during which period 9,963,300 pounds of dressed beef were handled.

TABLE 36.—*Plant expenses of beef department in large packing house (September, 1914).*

Item of expense.	Amount of expenses.	Expense per hundredweight dressed weight.	Item of expense.	Amount of expenses.	Expense per hundredweight dressed weight.
Labor	$12,048.42	$0.121	Depreciation	$4,573.10	$.046
Supplies	2,365.13	.024	Plant administration	2,308.85	.023
Repairs	1,139.39	.011	Casualty	446.77	.004
Icing	11,141.00	.112	Racks	66.81	.001
Operating	2,139.80	.021	Total plant expense	38,106.30	.382
Teaming	945.00	.009	Live-stock buying	2,857.62	.029
Railroad	397.80	.004	General administration	8,254.00	.083
Freezer storage	150.38	.002	Selling	8,651.75	.087
Laundry	101.30	.001	Miscellaneous	528.82	.005
Laboratory	13.60	.....			
Insurance and taxes	268.95	.003	Grand total	58,398.49	.586

The cost of operation of a typical packing house branch market in New York for one month, is shown by Table 37. These figures were furnished by the same concern as those shown in Table 36 and represent the reported cost of selling 668,899 pounds of meat products.

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TABLE 37.—*Expenses of branch house of large packing company (September, 1914).*

Item of expense.	Amount.	Item of expense.	Amount.
Pay roll, except labor	$1,282.58	Refrigeration	$200.00
Light	24.16	Telephone	22.95
Car fare	20.05	Depreciation	4.92
Postage	30.00	Tax	124.00
Telephone tolls	14.30	Interest	185.85
Stationery	9.77	Casualty insurance	5.29
Teaming	280.55	Sundries	234.02
Discounts	3.06		
Rent	589.96	Total expense	3,485.35
Branch house general expense	390.89	Expense per hundredweight	.52
Suspense	63.00		

As indicating the relation between volume of business and expenses in wholesaling meats, the following statements relative to sales and expenses in four typical branch houses are furnished by one of the large firms:

TABLE 38.—*Volume of business and expense of handling at four branch houses.*

Branch house.	Weight of meats sold (pounds).	Value.	Amount of expense.	Expense per hundredweight.
1	424,294	$61,833.94	$3,751.81	$0.86
2	231,706	33,495.32	1,850.01	.79
3	668,899	83,147.29	3,485.35	.52
4	2,209,402	289,281.78	8,737.61	.39

Concentration, largely into the hands of five corporations, of the ownership and control of slaughtering and meat-packing facilities in the United States constitutes one of the most striking features of the industry and likewise one of the most common causes of complaint on the part of meat producers on the one hand and consumers on the other.

The sentiment of stockmen on this subject recently has been expressed in an official statement by the secretary of the American National Live Stock Association as follows:[1]

> We believe that the present volume of the operations of the big packers and their control of the instrumentalities of marketing is fraught with danger to the producer, to the consumer, and even to the packer, and that any enlargement of their sphere of influence over so important an article of food would prove a more serious menace to this country. Any further centralization of the meat industry in the hands of fewer people would give them a greater control over prices—a power and responsibility which they should seek to avoid for fear of its abuse. Live stock commission men claim there is less competition on the various markets than ever before. This is because of the elimination of many competitive slaughtering plants and therefore fewer buyers.

Similar expressions on the part of commission men, retail meat dealers, and others are contained in the document from which the above statement is quoted. The extent to which such concentration exists may be expressed in various terms.

Of the total number of establishments reported to the Census Bureau in 1909, approximately 48 per cent were owned by indi-

[1] United States Congress (64th), House Document 855. Proceedings of the Conference relative to the Marketing of Live Stock, Distribution of Meats, and Related Matters (1916), p. 16.

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viduals, 22 per cent by firms, and 29 per cent by corporations. Of the total value of products, however, approximately 89 per cent were reported by corporations, 6 per cent by firms, and 5 per cent by individuals. The relative value of packing house products handled by corporations increased from 86 per cent in 1904 to 89 per cent in 1909. The Census figures for 1914 will be available shortly.

The percentage of meat animals bought at the centralized live-stock markets by the large packers is another indication of the extent of their control of the industry. It was found by the Commissioner of Corporations[1] in 1904 that approximately 98 per cent of all the cattle killed in the eight leading western packing centers were slaughtered by the large packing interests. It was estimated also that about 45 per cent of the number of cattle slaughtered in the United States during 1903 were handled by the same group of packing interests. More recent official figures on this subject are not available and satisfactory estimates relative to hogs and sheep have not been made.

The percentage of the total meat supply sold by the large packers in various cities affords another index of the extent of their control. Table 39 shows the proportions of the beef supply in the cities named, as determined in 1904 by the Commissioner of Corporations and in 1916 by the Office of Markets and Rural Organization.

TABLE 39.—*Estimated proportions of fresh beef used in specified eastern cities supplied by the five large packers.*

City.	1904 a	1916 b	City.	1904 a	1916 b
	Per cent.	*Per cent.*		*Per cent.*	*Per cent.*
Albany	.....	80	Harrisburg	.....	60
Baltimore	50	60	Newark	.....	90
Boston	85	95	New York City	75	90
Buffalo	17	45	Philadelphia	60	75
Cincinnati	25	10	Pittsburgh	67	85
Cleveland	33	40	Washington, D. C	.....	95
Columbus	.....	50	Wheeling, W. Va	.....	20

a United States Commissioner of Corporations, Special Report on the Beef Industry, 1905, pp. xxi, 66–70.
b Estimates obtained by Office of Markets and Rural Organization.

It is noted that the New England cities are almost entirely dependent upon the large packers for their beef supply, while some of the cities farther west are supplied to a large extent by local slaughterers.

Estimates of locally dressed beef which is consumed in specified cities range from 8 per cent to 85 per cent of the total beef consumed in those cities. From 8 per cent to 15 per cent was locally dressed in Boston, Washington, and New York City; from 22 per cent to 50 per cent in Pittsburgh, Jersey City, Albany, Columbus, Philadelphia, and Baltimore; and from 60 per cent to 85 per cent in Newark, Wheeling, Cleveland, and Cincinnati. In many of the cities named slaughtering is conducted by one or more establishments which are owned or controlled by the large western packing interests.

On the whole, it is apparent that the large packing interests exercise an increased and increasing degree of control over the industry and that effective means should be sought whereby this concentration of ownership and control may be made subject to suitable regu-

[1] United States Commissioner of Corporations, Special Report on the Beef Industry, 1905, p. xxi.

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lation in the interest, not only of the producers and consumers who are dependent upon them, but also in the interest of the corporations themselves.

LOCAL MARKETING AND DISTRIBUTION.

Opportunities available to stockmen and farmers for disposing of their meat animals otherwise than through the large live stock markets and packing centers are limited largely to the demands of retail butchers and local packing houses, and, to a certain extent, the slaughter of animals on the farm to be sold in the form of dressed meat or home prepared meat products. The sale of stock to local dealers for shipment to the centralized markets has been considered in the preceding section. The establishment of municipal abattoirs in some places and the present tendency toward centralization of local slaughter under municipal control, together with the recent introduction of pork curing as a department of local ice plants and the organization of farmers' cooperative packing companies at several points give timely and pertinent interest to this phase of the subject.

The Bureau of the Census reported that in 1909 40 per cent of the cattle, 61 per cent of the calves, 17 per cent of the sheep and lambs, and 36 per cent of the hogs of the country were slaughtered in retail slaughterhouses and on farms.[1]

Tables 1 and 2 show that local methods of marketing are prevalent to a greater or less degree in all the States, and principally in those sections where live stock production is of secondary importance. Table 2 indicates that more than half, or approximately 60 per cent of the meat animals marketed in the New England and cotton groups of States are disposed of locally. The table further indicates that this method of marketing is of least importance in the corn belt group, where less than 10 per cent of the stock is marketed locally. In the northwestern group of range States it appears that about 30 per cent of the cattle and hogs, 60 per cent of the calves, and 20 per cent of the sheep are marketed locally, and that in the southwestern group and California this form of marketing, except in the case of veal calves, is of minor consequence. Considering the United States as a whole, it is significant that relatively more veal calves than any other class of animals are disposed of at local markets, according to these estimates, which correspond to the figures of the Census Bureau given above.

Retail Meat Markets.

Indications seem to point toward a decline in the amount of slaughtering in retail slaughterhouses, although the method of selling animals to local retail butchers still is of considerable importance in many sections of the country, as is shown by Tables 1 and 2. From Table 1 it will be noted that in 18 States 30 per cent or more of the cattle are sold to local butchers for the retail trade, and that the same is true of veal calves in 30 States, hogs in 17 States, and sheep in 16 States. In Table 2 it will be noted that this method of marketing is most prevalent for all classes of animals in the New England and cotton groups of States and the northwestern group of western range States. In the New England States it is shown that from 22 to 65

[1] United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910, Manufactures, 1909. Statistics for the Slaughtering and Meat Packing Industry, p. 14.

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per cent of the cattle, from 31 to 99 per cent of the veal calves, with the exception of those in Vermont, from 18 to 61 per cent of the hogs, and (with the exception of those in Vermont) from 54 to 98 per cent of the sheep are sold to local butchers for the retail trade. In the cotton States from 13 to 65 per cent of the cattle, from 13 to 88 per cent of the veal calves, from 12 to 63 per cent of the hogs, and from 10 to 71 per cent of the sheep are marketed in this manner. In the northwestern group of western range States, it is indicated that from 25 to 64 per cent of the veal calves, and (with the exception of those in Wyoming) from 10 to 59 per cent of cattle, from 8 to 34 per cent of hogs, and from 5 to 55 per cent of sheep are so marketed.

The Bureau of the Census reports indicate that the greater part of the animals slaughtered for food in the United States in 1909 passed through wholesale packing establishments, 56,778,929, or almost two-thirds of the animals, being slaughtered in such plants. As compared with this, the reports show that a total of 13,012,614 animals, or 30 per cent of the beeves, 44.2 per cent of the calves, 13.2 per cent of the sheep, and 7.5 per cent of the hogs were slaughtered at retail slaughterhouses. No such figures from the report for 1900 are available for comparison. It is notable that a larger number of veal calves than of any other class of animals were slaughtered at retail slaughterhouses; also that the number so slaughtered was 5.8 per cent greater than the number slaughtered at wholesale packing establishments. This is in accordance with the figures of Table 1, which show that throughout the United States selling to local butchers is practiced more generally in the case of veal calves than in the case of other classes of animals.

In the report of the Commissioner of Corporations on the beef industry [1] may be found the results of an investigation concerning the proportion of the fresh beef supply slaughtered by local butchers in 835 towns and cities, varying in size from 2,000 population to 50,000 and over, and located in 48 States. A summary of the data gathered is given in Table 40.

TABLE 40.—*Proportion of fresh beef supply killed by local butchers in 835 towns and cities (1908).*

[Percentage of towns in which the indicated percentage of the total consumption was killed locally.]

Population of town or city.	Under 25 per cent of consumption.	25 to 50 per cent of consumption.	50 to 75 per cent of consumption.	75 to 100 per cent of consumption.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
2,000 and under	6.0	4.0	9.0	81.0
2,000 to 5,000	17.5	4.0	9.5	69.0
5,000 to 10,000	30.0	8.0	11.0	51.0
10,000 to 25,000	45.0	6.0	20.0	29.0
25,000 to 50,000	40.0	16.0	24.0	20.0
50,000 and over	45.0	18.0	10.0	27.0
All towns	18.5	5.5	10.5	65.5

In the report attention is called to the fact that in 259 out of 316, or 81 per cent, of the towns of 2,000 inhabitants or under, 75 per cent or more of the total consumption of beef is killed locally, while

[1] United States Commissioner of Corporations, Special Report on the beef industry, 1905, pp. 70-75.

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in cities with a population of 50,000 or more only 27 per cent are reported to be supplied with three-fourths of their beef from local butchers. The table shows further that as the population increases the proportion of beef shipped into the city also generally increases.

Table 41 shows the proportion of fresh beef killed by local butchers in different sections of the United States in 1903.

TABLE 41.—*Proportion of the fresh beef supply killed by local butchers in different sections of the United States (1903).*

[Percentage of towns in which the indicated percentage of the total consumption was killed locally.]

Section.	Under 25 per cent of consumption.	25 to 50 per cent of consumption.	50 to 75 per cent of consumption.	75 to 100 per cent of consumption.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
New England	85.5	2.5	4.0	8.0
New York, New Jersey, and Pennsylvania	39.5	13.5	17.5	29.5
Southern States [1]	4.0	1.0	12.0	83.0
Central States [2]	9.0	7.0	11.0	73.0
Western States [3]	6.0	4.5	10.5	79.0
Mountain and Pacific States [4]	4.0	3.0	4.0	89.0

[1] Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Kentucky, Arkansas, Louisiana, Texas, Oklahoma, and Missouri.
[2] Ohio, Indiana, Illinois, Wisconsin, and Michigan.
[3] Minnesota, Iowa, North Dakota, South Dakota, Nebraska, and Kansas.
[4] Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Idaho, Washington, Oregon, and California.

From the table it will be noted that the New England towns are dependent mainly upon the large packers for their supply of fresh beef. This also is true to a marked degree in the New York, New Jersey, and Pennsylvania towns. The reverse is the case in the Southern, Central, Western, Mountain, and Pacific States, where the production of cattle is greater, and it is shown that in 73 to 89 per cent of the towns or cities more than 75 per cent of the total consumption of beef is killed by local butchers.

Generally, the lower grades of cattle are handled by local butchers. This fact is shown by the special live stock marketing schedule, previously quoted. Out of a total of 1,188 replies to the question relative to the grade of stock purchased by local butchers, 70 per cent indicated the grade of cattle to be "medium to poor butcher stock," and the remainder largely "good butcher stock" and "medium to poor steers." The replies indicate that the hogs and sheep marketed in this manner in general are of better grade than the cattle.

The ordinary small local slaughterhouse which so long has been a necessary adjunct to the so-called butcher shop gradually is passing out of existence. Undoubtedly one of the large contributing factors in this change is the decrease of the local supply of live stock. Another important cause is the growing demand on the part of the public for better meat, produced from healthy animals under sanitary conditions. This demand is found particularly in the cities and larger towns and it has furnished much of the impetus for the extension of the municipal abattoir movement.

A significant feature of the retail business during recent decades has been the replacement, in a large proportion of cases, of the old-fashioned butcher shop by the modern retail market, which depends entirely upon wholesale meat concerns for its supply. Not only in

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large cities, but in many towns and villages where meat animals are more or less available, slaughtering has been abandoned by retailers, either because a sufficiently regular supply throughout the year is not obtainable, or because the meat can be procured more cheaply, regularly, or conveniently by means other than slaughtering. Further, there appears to be a growing tendency toward the combination of meat markets with grocery stores, more especially in the larger cities but also to a considerable extent in smaller places.

In 1908 the Department of Agriculture conducted a special investigation [1] in 50 cities, large, medium, and small, in all parts of the country, to determine the gross margin to the retailer in handling a side or carcass of beef. It was established that in the North Atlantic States the consumer's price of beef was 31.4 per cent higher than the wholesale price; 38 per cent higher in the South Atlantic States; and 39.4 per cent higher in the Western States. The average for the United States was 38 per cent. The investigation revealed further that the percentage of increase usually was lower in the larger than in the smaller cities, and was higher in the case of the cheaper grades of beef.

The investigations of this office in 1914 relative to the methods and cost of marketing typical lots of cattle from producer to consumer show a wide variation in the gross margins to the retailers who handled the beef of these shipments. These margins were found to range from 8.47 per cent to 33.29 per cent in the case of the shipments through the central markets and large slaughtering establishments and from 16.08 per cent to 38.08 per cent in the case of the cattle slaughtered by the local retail butchers. (See pages 71 and 72.)

Very little information is available relative to the cost of retailing meats. The data which are obtainable are largely estimates given by the retailers themselves. It is evident that this cost will vary considerably, depending upon the extent of the service given, the type, size, and location of the business, the class of trade, and the efficiency of the management. At the marketing conference [2] it was stated that the operating expense of the ordinary, up-to-date meat market is 14 to 16 per cent of its sales. An ex-president of the Master Butchers' Association of America stated that at that time retailers were making a gross profit of from 18 to 22 per cent. A number of estimates on cost of retailing meats were obtained from the retailers in connection with the investigations of this office on the marketing of selected lots of cattle in 1914. These estimates ranged from as low as 14 per cent, in the case of a market conducted on a cash basis with no delivery, to as high as 30 per cent, but the more representative markets averaged from 18 to 22 per cent. A significant fact brought out by this investigation was the limited knowledge on the part of a majority of the retailers regarding the cost of running their business.

The cost of retailing meats has been increased materially by the increase in service, particularly delivery service, demanded by the consuming public. The accounts of dealers in various parts of the United States indicate that delivery expenses constitute one-fifth to one-third of the cost of operation in typical retail markets. Co-

[1] Department of Agriculture Yearbook, 1909. (pp. 15-17.)
[2] United States Congress (64th), House Document No. 855. Proceedings of the Conference Relative to the Marketing of Live Stock, Distribution of Meats, and Related Matters. (1916.)

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operation in delivery service has proven successful in many cities and towns, and may be adopted more widely as an economy to the consumer and dealer. A retail merchants' delivery company, composed of all classes of retail dealers, has been in successful operation at Ann Arbor, Mich., a city of 16,000 inhabitants, since 1907. With this system it costs the butchers who are stockholders in the company 2¼ cents for delivery of each order not exceeding 100 pounds in weight, and four deliveries are made each day. The company is reported to be a success financially, and has lowered each dealer's delivery costs.

Municipal Abattoirs.

Centralized public abattoirs, either municipally owned or privately owned and operated under city inspection, are displacing rapidly the old type of slaughterhouse. For years public slaughtering establishments have been in existence in many municipalities in Germany, and to some extent in other countries. In the United States, however, they have been introduced only recently, the first municipally owned plant having been built at Paris, Tex., in 1909.

Inquiries recently have been sent out by this office to health officials in all the States requesting information relative to cities within the State having municipal abattoirs. From a summary of these replies as received from 45 of the States, together with information from other sources, it was found that 22 cities in 13 States have abattoirs or slaughterhouses under their control. In 7 instances the establishments are owned and operated by the city, while in the remaining 15 the plants are owned privately and operated under city inspection. The replies further indicate that the movement is being agitated in approximately one-half the States and that a number of cities within the boundaries of these States now are considering the adoption of some form of centralized slaughtering. The distribution of the cities which own abattoirs and which have public abattoirs under city inspection is shown on the accompanying map (Pl. VII, fig. 2).

Whether or not the city should build its own abattoir depends upon local conditions, which should be examined thoroughly before any definite action is taken. The features essential to the financial success of abattoirs of this kind are a competent manager and a sufficient supply of live stock accessible to the local butchers throughout the year. An adequate ordinance also is necessary to regulate the inspection and slaughtering of animals and the handling of meat and to govern the operation of the abattoir. At least one municipality has been compelled to discontinue the operation of its abattoir because of the lack of an ordinance giving it authority to regulate the slaughtering of animals.

Ordinances adopted by the various cities do not differ materially except in minor details. Those on file in the Office of Markets and Rural Organization show them to be based on the regulations of the Bureau of Animal Industry of this department in so far as inspection is concerned. It is customary to specify in these ordinances the fees for inspection and the killing and cold storage charges per head for each of the various classes of live stock.

Officials of municipalities which operate abattoirs state that it is their aim to make them self-supporting only; however, it is a signifi-

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cant fact that these plants often are operated at a loss, largely because of poor management, the small number of animals killed, and the unprofitable utilization of by-products.

As a rule, where a city owns and operates an abattoir the inspection fee is included in the charge for slaughtering. Where the plant is operated by private interests the usual fee for inspection is $0.10 per head for cattle and $0.05 for calves, sheep, and hogs. These fees go to the city to defray expenses of inspection. Cities which permit the sale of farm-killed meats within their boundaries—and most of them do—require that the carcass with vital organs attached be brought before the city inspector for observation, for which a fee of $0.10 usually is charged.

The charges for slaughter vary somewhat in the different cities, and are determined largely by the services rendered and the distribution of the offal. In one city which has no cold storage in connection with the abattoir and in which the owner of the animal furnishes the labor for slaughtering and retains all offal, the charge is $0.25 per head. Another city charges $2 per head for cattle and proportionately for other stock, including slaughtering, six days' cold storage, and delivery in any part of the city. In this case the owner retains the hide and edible offal, the remainder going to the abattoir.

The following, which are the charges made at the abattoir of Paris, Tex., are representative of the usual rates: $1.25 for each beef and $0.75 for each calf, hog, sheep, or goat. This includes slaughter, two inspections, five days' cold storage, and delivery to any part of the city. A charge of $0.10 per day is made on each carcass which is left in the refrigerating rooms longer than five days. In lot 12 are given data showing the actual costs of handling a southern steer at the abattoir at Paris, Tex.

In several cities the abattoir charges have been a source of dissatisfaction on the part of the butchers, and in one case the butchers obtained an injunction against the city, claiming exorbitant charges for services rendered and too stringent regulations regarding slaughterhouse equipment.

The principal advantages to be derived from concentrated slaughtering at public abattoirs are the utilization of offal, practically all of which is wasted at the local slaughterhouse, the better appearance of the dressed carcass, because of improved facilities and more careful handling, which materially adds to its value, and the lessening of the percentage of cut hides. It also enables a municipality to carry out effectively a thorough system of inspection.

The following information obtained by the Bureau of Animal Industry regarding conditions in a certain eastern city of 50,000 population, which probably is typical of many other cities throughout the country, offers an excellent illustration of the possibilities of improvement in local marketing through centralized slaughtering. Within a radius of about 8 miles of this city 25 killing places were found, at which the total weekly slaughter amounted to 40 to 100 cattle, 50 to 300 hogs, and 100 to 500 sheep. This average was representative of about 40 weeks in the year, while some killing was done during the summer months.

In these slaughterhouses it was noted that the offal was wasted, with the exception of the small amount consumed by hogs. The dressing was done poorly, detracting from the value of the carcass and

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producing a large percentage of cut hides, thus further reducing the revenue. Attention was called to the fact that all of this killing could be done at one plant with the labor of 6 to 8 men, instead of 25 to 50 as was required here. Furthermore a modern sanitary plant could be operated at a profit from the revenue derived from the offal and abattoir fees. With such a plant Federal inspection could be maintained, thus increasing the value of the meat by making possible interstate shipments.

The establishment and successful operation of a municipal abattoir is not without its limiting factors. Principal among these are antagonism on the part of local butchers and the difficulty of obtaining competent management. It also is a fact that local politics in many cases is a detriment to such an undertaking, hindering both the appointment of competent employees and public support of the enterprise.

Local Packers.

Local packing plants are so named because they are situated in live stock producing sections away from the market centers and are dependent mainly upon the surrounding territory for their supply of animals. Although the amount of business done by local plants is small as compared with the total packing business of the country, nevertheless they are a factor of considerable importance in the local marketing of live stock in sections where they have been established.

The distribution of local packing houses is mainly in the more important live stock producing States and in sections remote from live stock markets and packing-house centers. Tables 1 and 2 indicate that the disposing of stock to local packers is most prevalent in the North Central and far Western States and to a lesser extent in a few of the Southern States. A number of small packing companies also have been established in Eastern States. These, however, are dependent upon market centers for the major part of their supply of stock, in which respect they differ from most of the local plants in other sections of the country.

The business of these local plants is confined largely to pork packing, their trade in beef and other fresh meats being limited in most cases to the demands of the local territory. The fact is substantiated by Tables 1 and 2. On account of the equipment, refrigerator cars and extensive selling organization necessary to conduct successfully a large-scale beef-packing business, small plants generally have been unable to compete with the large packers in the beef department of the industry beyond the local territory.

Aside from competent, thoroughly trained management, the successful and economical operation of a local packing business is dependent mainly upon three factors, the importance of which often is underestimated. In the first place, a uniform and adequate supply of hogs accessible to the plant and a reasonably even distribution of receipts during the year are essential. A number of instances have been noted in which packing plants have been abandoned because of an insufficient supply of hogs, and it is not uncommon to find smaller packing houses running at a loss during the summer season in order to maintain the organization and equipment necessary for the winter kill. The greatest difficulty in this respect has been noted in the South. One plant which handled approximately 30,000 hogs in 1915

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killed 93 per cent of them during the six months from October to March, inclusive. This same company purchased between 300,000 and 400,000 pounds of "packers'" sides during the summer months in order to hold its trade.

The amount of capital required to establish and operate a business of this kind is considerable, especially in the case of a new concern establishing a trade for its products. Usually, in the case of packing companies located at interior points, the capital necessary to operate the plant and finance stocks of meat in storage is from 150 per cent to 200 per cent of the amount invested in plant and equipment. Furthermore, it is necessary often to obtain credit for large additional sums in order to carry on the business successfully. The lack of such credit has been one of the leading factors in the failure of a number of plants. Figures obtained from a concern which handles approximately 35,000 hogs and a small number of cattle a year may be considered fairly representative of plants of this type and of similar capacity. This company has $110,000 invested in plant and equipment, has operating capital to the amount of $150,000, and to conduct its business during 1915 found it necessary to borrow $200,000.

The disposition of the finished products of these plants is of great importance, as it is not possible always to market them quickly, easily, and at satisfactory prices. The products of small plants often can be disposed of to the large packers more advantageously than elsewhere. Information obtained from a number of local packers indicates that from 30 per cent to 60 per cent of their output ordinarily is sold to the large packers or through brokers. In this respect the local packer is at a disadvantage, inasmuch as the large packer must buy the products at a figure which will permit him to sell at a profit. On the other hand, the local packer has an advantage in buying his live stock, and in some cases this advantage may be of sufficient magnitude to offset his disadvantage in marketing his products.

The minimum capacity at which a plant of this type can be operated economically is considered generally by those familiar with the local packing business to be 300 to 500 hogs per week. Plants with smaller capacities ordinarily have to sacrifice their surplus products on the market because they are not able to ship full cars of a single product. Further, it is impossible for such plants to purchase supplies as advantageously or to utilize the by-products as economically as the larger plants.

COOPERATIVE PACKING HOUSES.

The widely demonstrated practicability of cooperation as a means of marketing grain, dairy, and fruit products in this country has led recently to the undertaking of similar enterprises in the field of slaughtering and distribution of meats, more especially hog products. It is recognized that the packing business is a complex and specialized industry, requiring large capital to provide a proper plant and finance stock in storage; also that highly trained management is essential. Nevertheless, it is contended by many authorities on cooperation that the successful conduct of meat packing on a large scale is practicable, and several such enterprises now are under way.

The application of cooperative methods to the packing house business first was inaugurated at La Crosse, Wis. This association, known as the Farmers' Cooperative Packing Co., was organized

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in June, 1914, under the cooperative laws of Wisconsin. The plan immediately became popular, with the result that similar companies, capitalized at $100,000 to $1,000,000 each, were projected in at least 16 other communities in six States, and including the one at La Crosse represented a total capitalization of $4,500,000. A number of the proposed companies since have been abandoned. The company at Wausau, Wis., began operations in January, 1916. Organization has been completed and building operations begun in two other instances, and companies are in process of organization at seven other points. The stated capitalization of the cooperative companies now being operated and in process of organization amounts to $3,500,000.

The laws of Wisconsin relating to cooperative associations and to unjust discrimination in prices are considered especially favorable for cooperative meat packing enterprises. This is evidenced by the fact that the two companies now operating, and four of those in process of organization, are located in that State.

Although organized as farmers' cooperative packing companies, with capital stock owned largely by farmers, practically none of the companies have originated with the farmers themselves and they have been promoted chiefly by persons from outside of the communities concerned. This has involved a promotional cost of from 15 to 25 per cent of the capital stock; that is, in the case of a company capitalized at $500,000, from $75,000 to $125,000 is expended for the sale of stock. An instance recently was noted of a noncooperative local packing company, capitalized at $300,000, which was organized at a cost of $400, or a little more than one-tenth of 1 per cent of the capital.

In the case of one of the cooperative companies the amount received from the sale of stock and the premiums was reported to be $266,515. The stock is owned by approximately 2,100 individuals, most of whom are farmers residing within a radius of 100 miles of the plant. The reported cost of organizing this company was $37,814.53 and the total cost of plant and equipment, including additions and improvements, was $134,228.56, which left $94,471.91 with which to operate the plant and conduct the business of the company. In the following year this amount was reduced to $83,732.87 by additional improvements. The losses incurred by the company during the first 18 months of operation reduced the operating capital to a little more than $12,000. Because the company was handicapped badly from the outset it may not be considered a fair example of what may be accomplished by cooperative plants organized and operated under more favorable conditions. On the other hand, communities which are considering the establishment of such plants, by carefully considering the experiences of this company, should be enabled to avoid a number of disastrous mistakes.

The business of cooperative packing companies, as regards the supply of stock, the operation of the plant, and the distribution of the finished products, is not unlike that of noncooperative companies similarly situated, and what has been said in the preceding section relative to the limiting factors of local packing plants is applicable to those which are cooperatively owned. Authorities on cooperative organization agree that the more simple the processes involved the more certain is the success of a cooperative scheme. Considering the complexity of a large-scale packing business and the fact that

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the successful application of cooperative methods to such an industry is not yet demonstrated in this country, it would seem advisable for communities which are contemplating an enterprise of this kind to proceed conservatively, either deferring the establishment of an extensive plant until its feasibility has been proven, or limiting the business to local trade at the start and gradually expanding as the success of the organization and demand for the surplus may warrant.

Marketing Farm-Slaughtered Meats.

The marketing of farm-prepared meats and meat products, although of comparatively limited possibilities in relation to the industry as a whole, still is of importance under certain conditions, and is practiced to a varying extent in practically all parts of the country.

The total number of animals slaughtered on farms and ranges in the United States in 1909 was 18,567,272.[1] Of this total 7.6 per cent were beeves, 6.1 per cent calves, 2.8 per cent sheep and lambs, 0.6 per cent goats, and 82.8 per cent hogs. It was further shown that the number of hogs slaughtered on farms in 1909 was 28.9 per cent of the total number of hogs slaughtered for food in the United States. From a study of Table 1 it will be seen that while this method of marketing is practiced in all States its importance varies noticeably in the different States and for the different classes of animals. Taking the United States as a whole, hogs are sold in the form of farm-dressed carcasses more than any other class of animals, with calves, sheep, and cattle following in the order named.

Selling Dressed Carcasses.

The sectional importance of farm slaughtering is indicated by Table 2, in which the States have been grouped according to specified producing areas. It will be noted from this table that the sale of farm-slaughtered carcasses is of greatest importance in the New England and cotton States and the northwestern group of western range States. The small importance of this method of marketing is noticeable particularly in the corn belt States, where it is shown that from 1 to 2 per cent only of the cattle, from 1 to 5 per cent of the veal calves, from 1 to 5 per cent of the hogs, and from 0.1 to 1 per cent of the sheep are so marketed. The table further indicates that cattle are sold as farm-dressed carcasses most extensively in the New England States, where from 4 to 13 per cent are so marketed; calves in the northwestern group of western range States, where, with the exception of two States, from 18 to 47 per cent are so marketed; hogs in the New England States, with from 17 to 33 per cent; and sheep in the cotton States, where with one exception from 5 to 24 per cent are so marketed.

Farm-dressed carcasses usually are sold to local retail butcher shops, although it is not uncommon for farmers in some sections, particularly in the South, to sell such meats to a private trade at lower prices than those prevailing at the retail stores. Many complaints are made by retail butchers in towns where such selling is practiced, because of the injury to their business. One of the dangers of this method of marketing is the possibility of a glutted market with a

[1] United States Census, Bureau of, Bulletin of the Thirteenth Census, 1910, Manufactures, 1909. Statistics for the Slaughtering and Meat Packing Industry, p. 14.

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resultant low price, especially when farmers slaughter their animals before making arrangements for the sale of the carcasses. Several instances in southern towns recently have been recorded in which beef and pork carcasses have sold as low as 3 cents to 4 cents per pound because of failure to arrange a sale beforehand.

A common practice among farmers living near large cities is to slaughter the animals on the farm and consign the carcasses by express to commission dealers. This method is used particularly for veal calves and to a less extent for lambs and hogs.

"String butchers" are those who go through the country buying live stock, principally calves, hogs, and sheep, and slaughtering them at the farms where purchased. In some localities this custom is very extensive. At one place in Michigan, for example, about 20 of these butchers were operating within a radius of 25 miles. Their meats were disposed of principally to retail markets and shipped to commission houses in the cities. The increasing restrictions regarding inspection of meats sold in cities and towns gradually will eliminate this class of dealers.

FARM-CURED MEATS.

On account of the nature of the product, the opportunities for marketing farm-cured meats are not as limited as is the case with fresh carcasses. Investigations indicate that the general practice over the country is for the farmer to sell such products to local retail stores or to wholesale dealers. In some instances farmers have developed a direct-to-consumer business and have established such wide reputations for their hams, bacon, and sausage that not only their entire vicinity has been drawn upon for the requisite raw materials but large amounts of "green" meats are purchased at packing centers, and the business has assumed the proportions of a wholesale packing establishment. The chief elements of success in ventures of this kind are the catering to a select trade at special prices, the maintenance of a high standard of quality, and the judicious use of advertising.

There is a large opportunity for cooperative effort in communities which are adapted to the production of farm-cured meats, particularly with reference to advertising and standardization. In Brooks County, Georgia, where the farm curing of meats is practiced extensively, the farmers and business mens' clubs, through a joint committee, have adopted standard rules for the cutting, trimming, smoking, and labeling of hams, bacon, and shoulders, and inaugurated a plan for advertising and marketing the three grades they have established. A community curing plant large enough to accommodate the hogs of several farmers would assist greatly in producing such results. The principal advantages of such a plant lie in the production of hams, bacon, and shoulders of uniform quality, shape, and cure and the greater efficiency to be obtained in slaughtering and handling the meats at a central plant.

LOCAL ICE PLANTS.

The curing of meat at ice plants is a recent development in local marketing in the South. The business is confined to the handling of pork products, and either the meat is cured for the farmer at a specified price per pound or the dressed hogs are purchased from the farmers by the ice plant management. The hogs are slaughtered on the farm

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in either case, and the cured meats, aside from those retained for home use, are sold principally to local trade.

One representative plant which cures meat for the farmers charges 1 cent per pound for curing, 2 cents for curing and smoking, and 3 cents for curing, smoking, and wrapping. The meat, cut in desired pieces, is delivered to the ice plant by the farmer, and the ice plant furnishes the labor and material, together with the refrigeration, necessary in the preparation of the meats. The amount of meat cured at this plant since the business was inaugurated is reported by the management to be as follows: Winter of 1913–14, about 30 tons; 1914–15, about 55 tons; and 1915–16, about 120 tons. A number of plants in southern Georgia are conducting the business after this plan.

Where ice-plant owners purchase the hogs from the farmers, the hogs are bought dressed weight, usually with the heads removed. One plant which began this business during the winter of 1913–14 by purchasing 100 hogs, bought 200 during the following winter and approximately 350 during the winter of 1915–16. It is stated that the number of hogs produced in the community has almost doubled in the last two years, largely because of the market provided by the ice plant. According to the statement of the manager of this plant, a profit (not including refrigeration) of 42.3 per cent on the investment was made on the first winter's business and 32.4 per cent on the second winter's business. Similar results have been obtained by other plants. The business is being conducted in one way or another at from 25 to 30 plants in various parts of the South. The State of Arkansas leads in the number of these plants, most of which purchase the hogs from the farmers. The industry in that State has been extended and assisted by a joint representative of the States Relations Service and of the Office of Markets and Rural Organization, cooperating with the extension division of the University of Arkansas, with the result that about 20 ice companies already have taken up the work, and a number of others have stated that they will engage in the business during the next winter.[1]

While it is not likely that a very large number of hogs ever will be handled by local ice plants, this outlet provides a market for the surplus hogs of the community, and offers encouragement to small farmers and others who are not so situated as to ship in carload lots to the large markets or packing-house centers. It also enable farmers to save a large proportion of their meat in curing, while under the ordinary conditions a relatively large percentage of the meat usually is lost. It also enables ice-plant owners to obtain additional revenue from their plants by utilizing the equipment and storage rooms during the winter months, when the ice business is dull.

PARCEL-POST MARKETING.

Very few data are available to show the extent to which meats are marketed by parcel post. Such figures as are obtainable from the Post Office Department, however, indicate a marked increase during the last two years (1914–16), in the amount of food products, including meats, marketed by mail directly to the consumer. Particularly is this true in the large centers of population.

[1] Foot, Lawrence, How to Make as Good Hams in Arkansas as are Made in Virginia. Directions to ice factories, cold-storage plants and creameries with refrigeration. Little Rock, Ark., 1915.

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In 1914 the Post Office Department, through the postmasters in in some of the large cities, inaugurated a "from-farm-to-table" service in food distribution. This service since has been established in 35 of the leading cities of the country, and the reports of the postmasters indicate that more or less meats and poultry are distributed by mail at these places. The parcel post division of one of the large cities of the Middle West handled during 1915 5,316 packages of poultry, 4,893 packages of fresh meats, 4,116 packages of cured meats, and 262 packages of lard. The report from another large city shows that thousands of families received Christmas turkeys by parcel post, and that fresh and cured meats, lard, and hams are passing through the post office in varying quantities. The postmaster of one of the larger Southern cities reports that of this class of mail 20 per cent is poultry, 5 per cent is cured meat, and 5 per cent country sausage.

Parcel post, as a marketing medium for meats and meat products, from its nature, is limited in comparison with other methods of marketing; yet the amount thus marketed, though small as a percentage, is considerable as a sum total. For fresh meats this method of delivery is best adapted to the cooler seasons, while for cured products it is available throughout the year.

RELATIVE MARGINS IN MARKETING AND DISTRIBUTION.

The data here presented consist of (1) market prices of live stock and meats for a series of years, arranged by monthly averages, together with a brief discussion of the tendencies and variations which they reveal; and (2) results of a series of detailed studies on the yield and disposition of selected lots of cattle.

LIVE-STOCK AND MEAT PRICES BASED ON MARKET QUOTATIONS.

In order to determine approximately the normal relations between live-stock and meat prices, average monthly quotations on the different kinds of animals and of meats for the five-year period 1910 to 1914 were compiled and are shown graphically herewith. Market prices at Chicago were chosen for this purpose, because that city is the seat of the largest live-stock market and meat-packing center in the world; quotations at other markets and throughout the country are based to a large extent upon prices prevailing at Chicago. At the same time, by reason of its large and varied population, Chicago is one of the most important consuming points; hence retail meat prices are more readily comparable with wholesale quotations and live-stock-market statistics than would be the case concerning similar data representing any other market.

Monthly average prices have been used in this study, with the exception of two instances which represent weekly averages for good beef steers and for lambs. Prices are given for each year from 1910 to 1914, inclusive, and five and ten year averages are shown for the periods 1910–1914 and 1905–1914, respectively. Monthly average receipts at the six leading markets for 1910–1914 are given for various classes of live stock.

A comparison of the prices of months and weeks of each year with the average price for all the years represented on the charts indicates in a general way both the extent to which market prices are due to certain established seasonal influences and the variations from normal

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price conditions which occurred. The prices used in constructing the charts for cattle, hogs, and sheep are for specified classes and grades. The quality and condition of the animals within these classes vary materially from one season of the year to another, hence the variations shown should be considered indicative not altogether of market price fluctuations, but also, in large part, of seasonal differences in the market grade of the receipts. Daily fluctuations, which frequently are large and abrupt, and which constitute one of the most adverse features of live-stock-market conditions, are so irregular that it has not been deemed practicable to attempt an analysis of that subject in this connection.[1]

Market Prices of Live Stock.

BEEF STEERS.

The prices for native beef steers are shown in Plate VII and Plate VIII, figure 1. In Plate VII[2] are represented the weekly average prices for good beef steers for each of the years 1910 to 1914, similar averages for the five years combined, and for the ten years 1905–1914. With the exception of 1910, during which unusually high prices prevailed in early spring, the prices of good beef cattle tended to reach their lower limit about the last of January or the first of February, while the high point usually has been reached in late August or early September.

A comparison of the monthly variations in the five-year average receipts of cattle at the six leading markets and the corresponding fluctuation in Chicago prices of native beef steers weighing from 900 pounds upward, are shown in Plate VIII, figure 1. In addition this figure shows average prices by months of native beef cattle at Chicago for the ten years 1905 to 1914, inclusive. The similarity in seasonal variations shown for the different periods covered by the plate is significant of the regularity of live-stock movements and relative prices from year to year.

Plate VIII, figure 2, shows the average prices of feeder cattle at Chicago by months during the five years 1910–1914, inclusive. Five and ten year averages also are shown. The averages for both the five and ten year periods show that stocker and feeder cattle prices are highest in April and May and lowest in October, November, December, and January. In this connection it should be noted that the prices for the individual years vary from the average in that the lowest prices of stocker and feeder cattle are more frequent in January and July than in the months indicated by the five and ten year monthly averages.

Notwithstanding the fact that the five-year average of prices shows that the month of January is the lowest in price, the movement of stocker and feeder cattle from Chicago as a monthly average for five years has been greater in October, November, September, December, and August than in January. The five-year average shows the smallest number of stockers and feeders to be sent out from Chicago in May; the difference in number between the high and low months of January and May being about 34,000 head.

[1] For statements relative to daily fluctuations, see United States Congress (64th), House Document No. 855. Proceedings of the Conference Relative to the Marketing of Live Stock, Distribution of Meats, and Related Matters (1916).

[2] The data represented by Plates VII to XIII were compiled from the Chicago Daily Farmers and Drovers Journal, Yearbooks of Figures, 1910 to 1914, inclusive.

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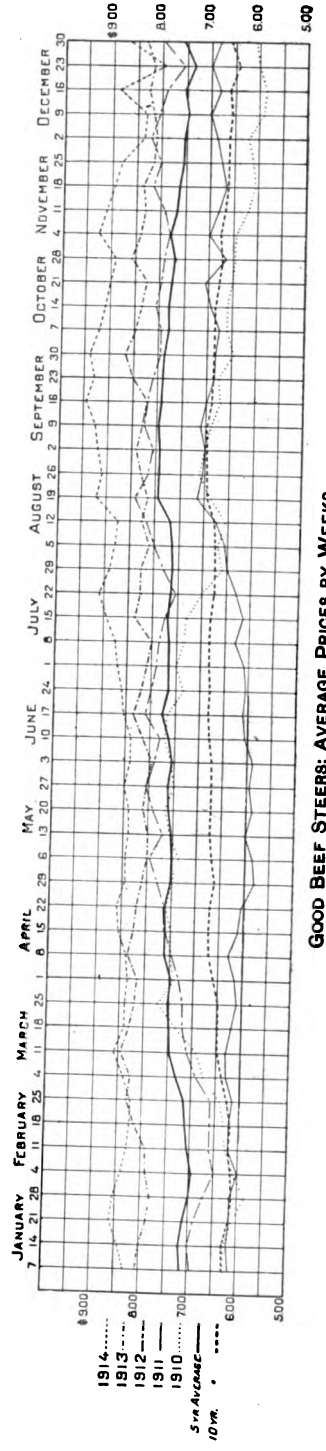

GOOD BEEF STEERS; AVERAGE PRICES BY WEEKS.

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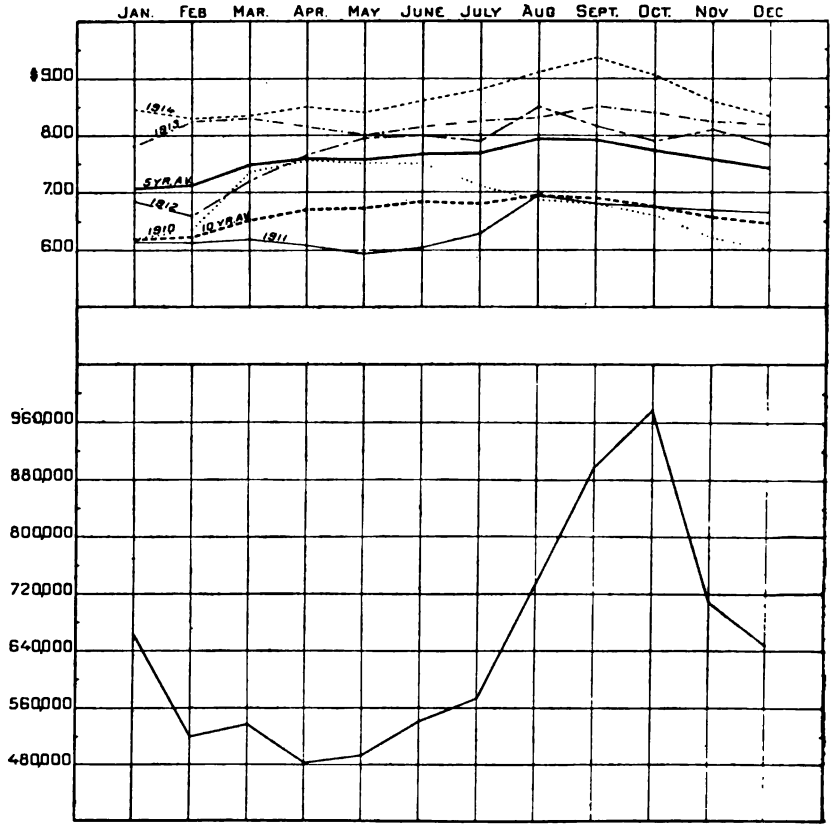

FIG. 1.—NATIVE BEEF STEERS 900–1,900 POUNDS: AVERAGE PRICES BY MONTHS. NATIVE BEEF STEERS, ALL CLASSES; AVERAGE RECEIPTS AT SIX LEADING MARKETS FOR FIVE YEARS, 1910–1914.

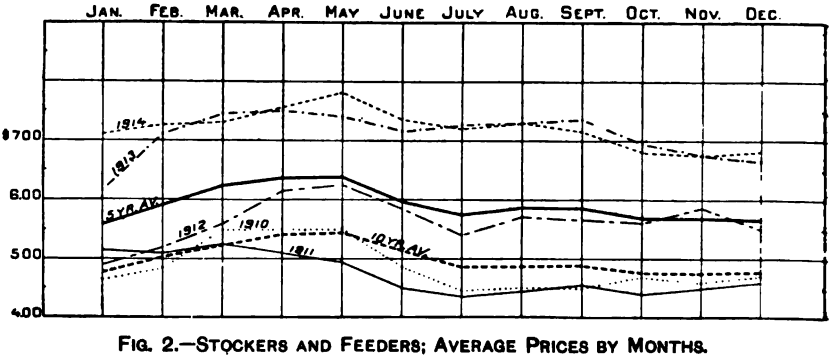

FIG. 2.—STOCKERS AND FEEDERS; AVERAGE PRICES BY MONTHS.

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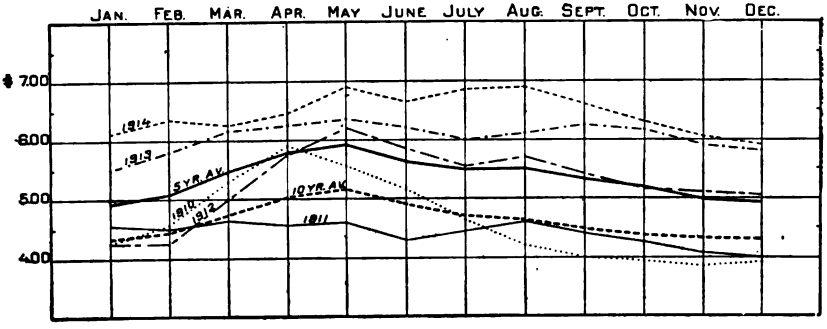

FIG. 1.—FAT COWS AND HEIFERS; AVERAGE PRICES BY MONTHS.

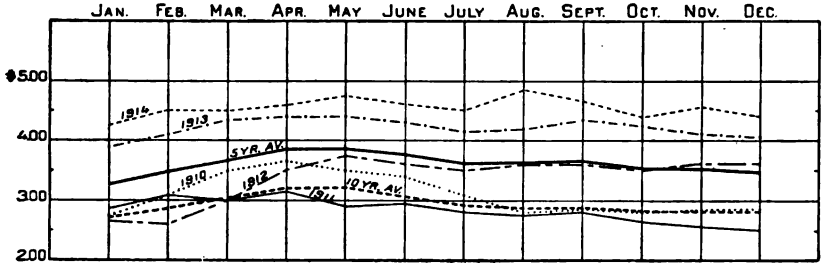

FIG. 2.—CUTTERS AND CANNERS AVERAGE PRICES BY MONTHS.

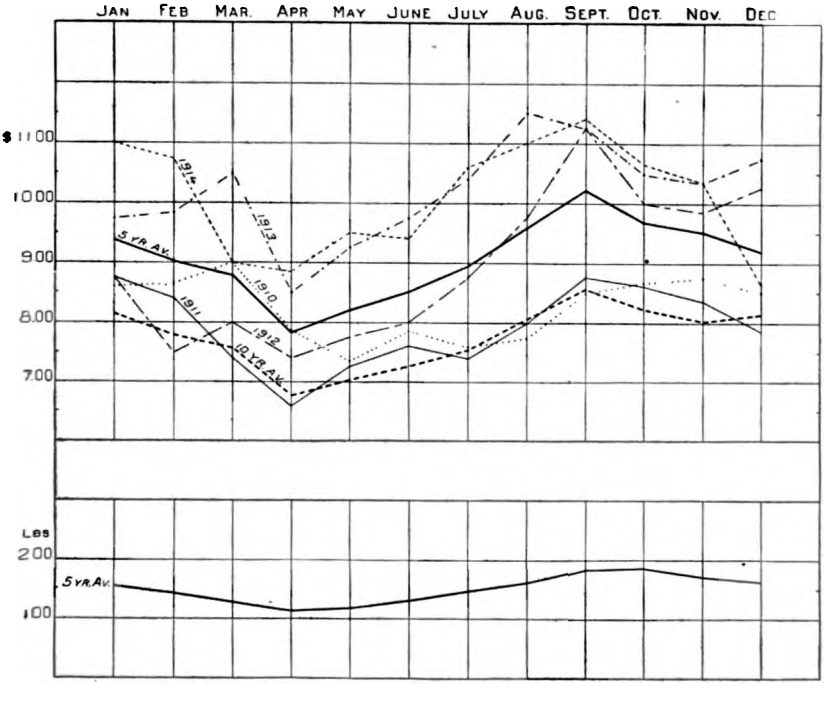

FIG. 3.—VEAL CALVES; AVERAGE PRICES BY MONTHS.
VEAL CALVES; AVERAGE WEIGHT FOR FIVE YEARS, 1910-1914, AT CHICAGO.

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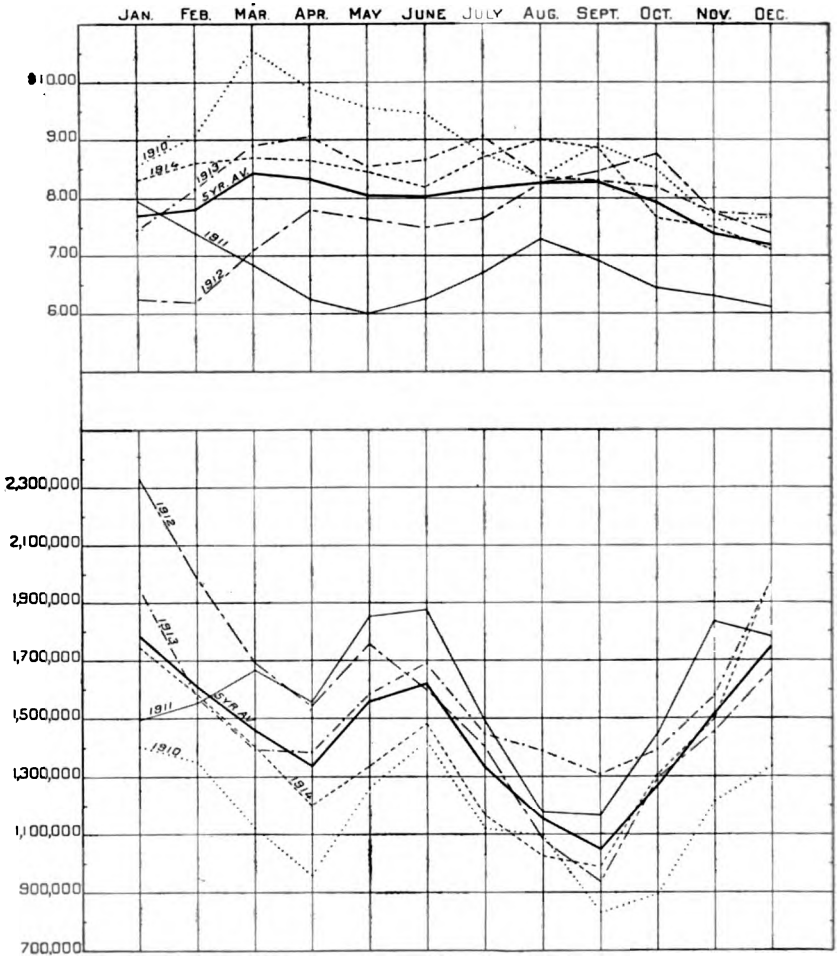

HOGS, ALL GRADES; AVERAGE PRICES BY MONTHS.
HOGS; AVERAGE RECEIPTS BY MONTHS AT SIX LEADING MARKETS.

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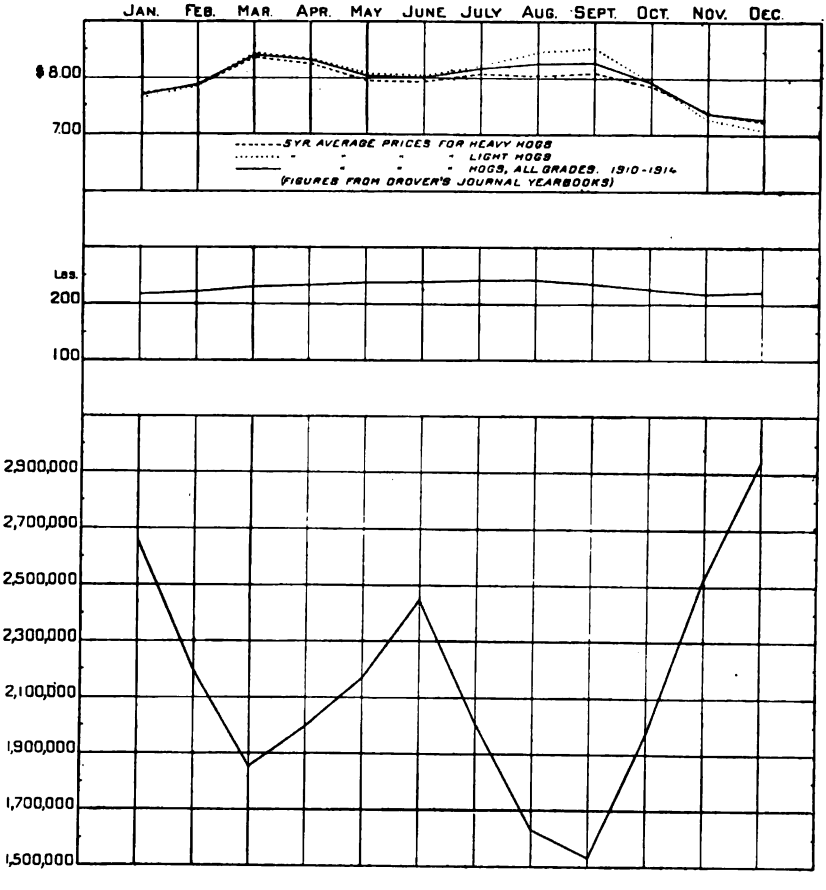

HOGS; HEAVY, LIGHT, AND ALL GRADES; AVERAGE PRICES BY MONTHS, 1910-1914.
HOGS; AVERAGE WEIGHTS BY MONTHS FOR FIVE YEARS, 1910-1914, AT CHICAGO.
HOGS; AVERAGE NUMBER PACKED IN WEST FOR FIVE YEARS, 1910-1914.

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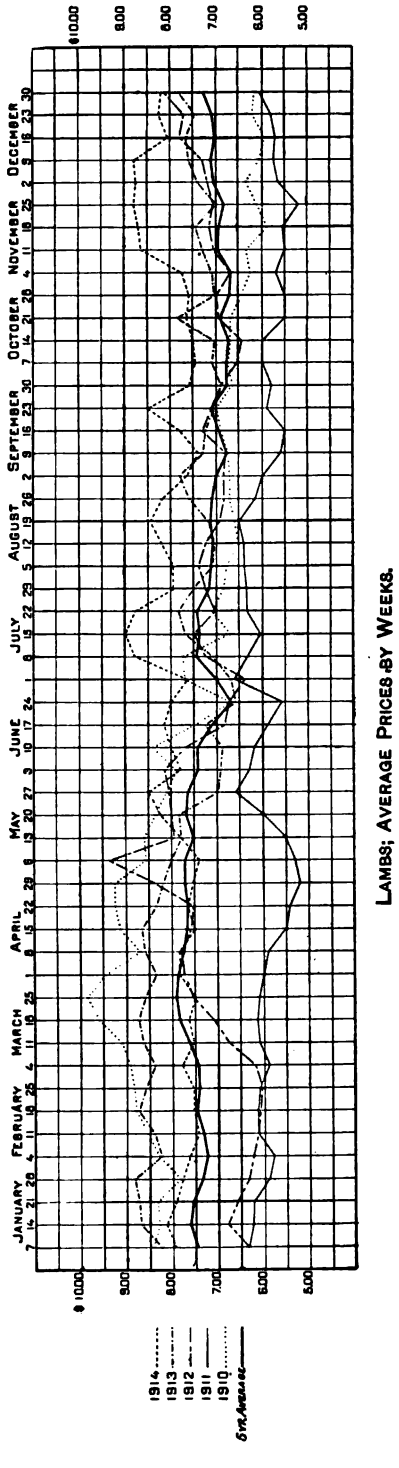

LAMBS; AVERAGE PRICES BY WEEKS.

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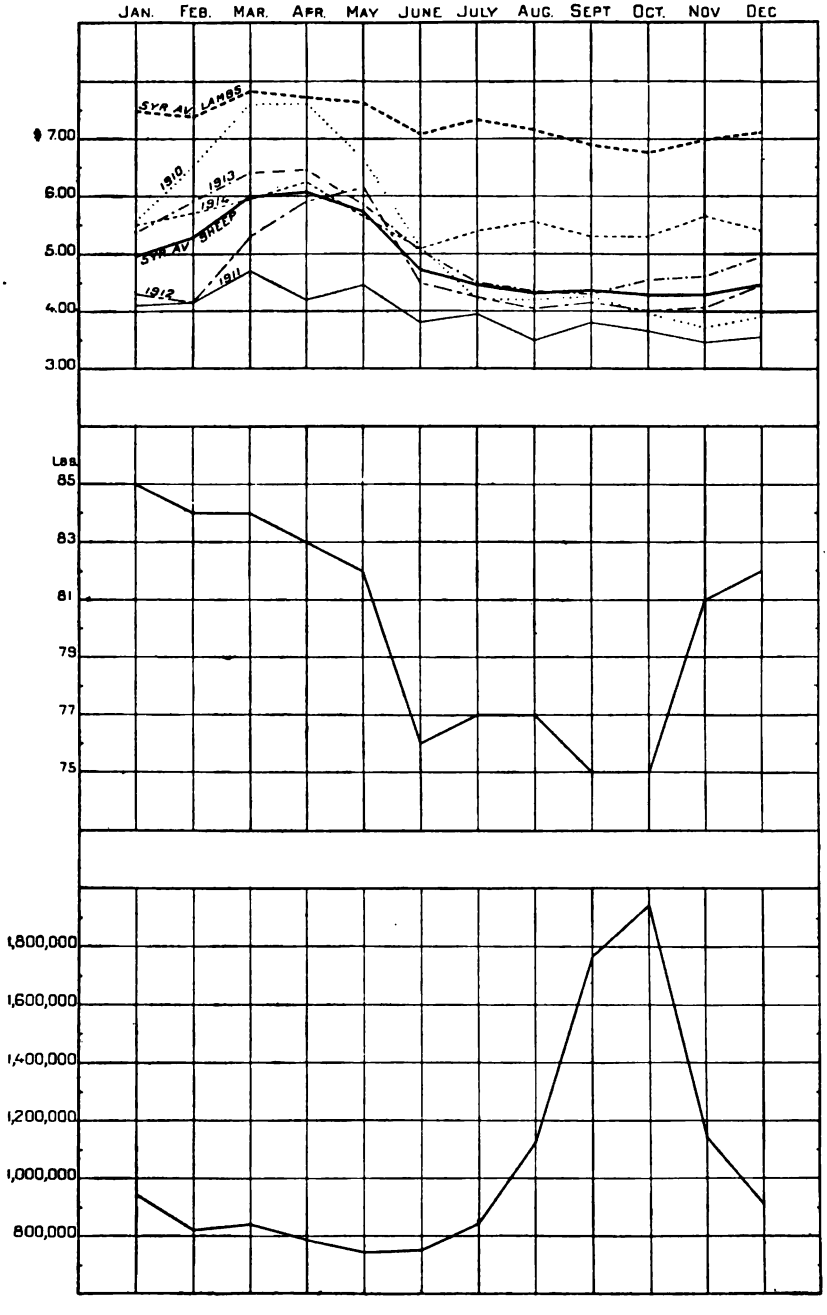

LAMBS; NATIVE AND WESTERN COMBINED; AVERAGE PRICES BY MONTHS; SHEEP AND LAMBS; AVERAGE PRICES BY MONTHS FOR FIVE YEARS.

SHEEP AND LAMBS; AVERAGE WEIGHTS BY MONTHS FOR FIVE YEARS, 1910-1914, AT CHICAGO.

SHEEP; AVERAGE RECEIPTS BY MONTHS FOR FIVE YEARS, 1910-1914, AT SIX LEADING MARKETS.

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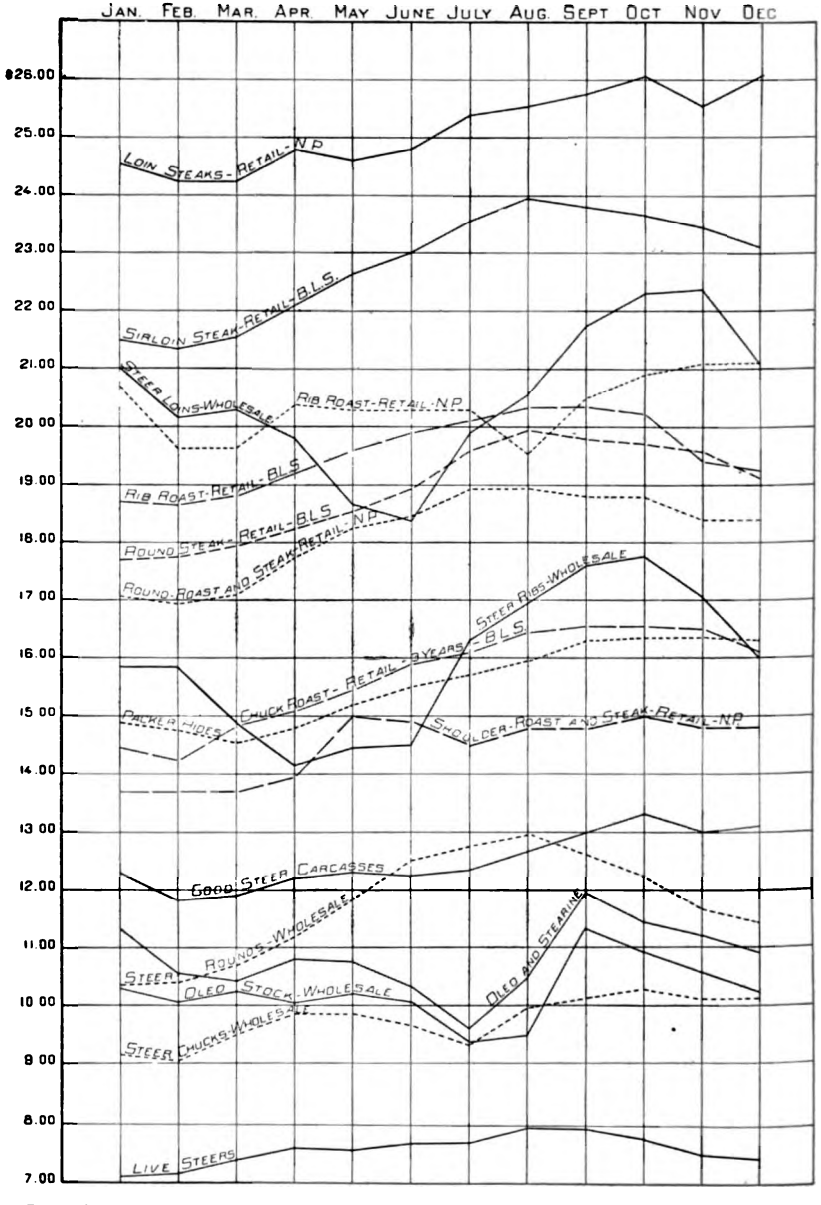

BEEF STEERS; CARCASSES, CUTS, AND BY-PRODUCTS; AVERAGE PRICES BY MONTHS, 1910-1914.

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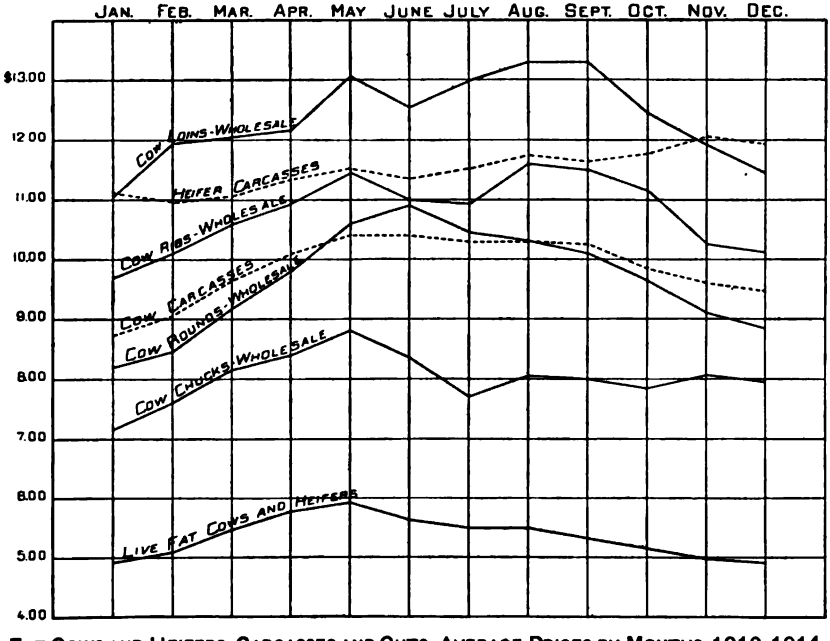

FAT COWS AND HEIFERS, CARCASSES AND CUTS; AVERAGE PRICES BY MONTHS, 1910-1914.

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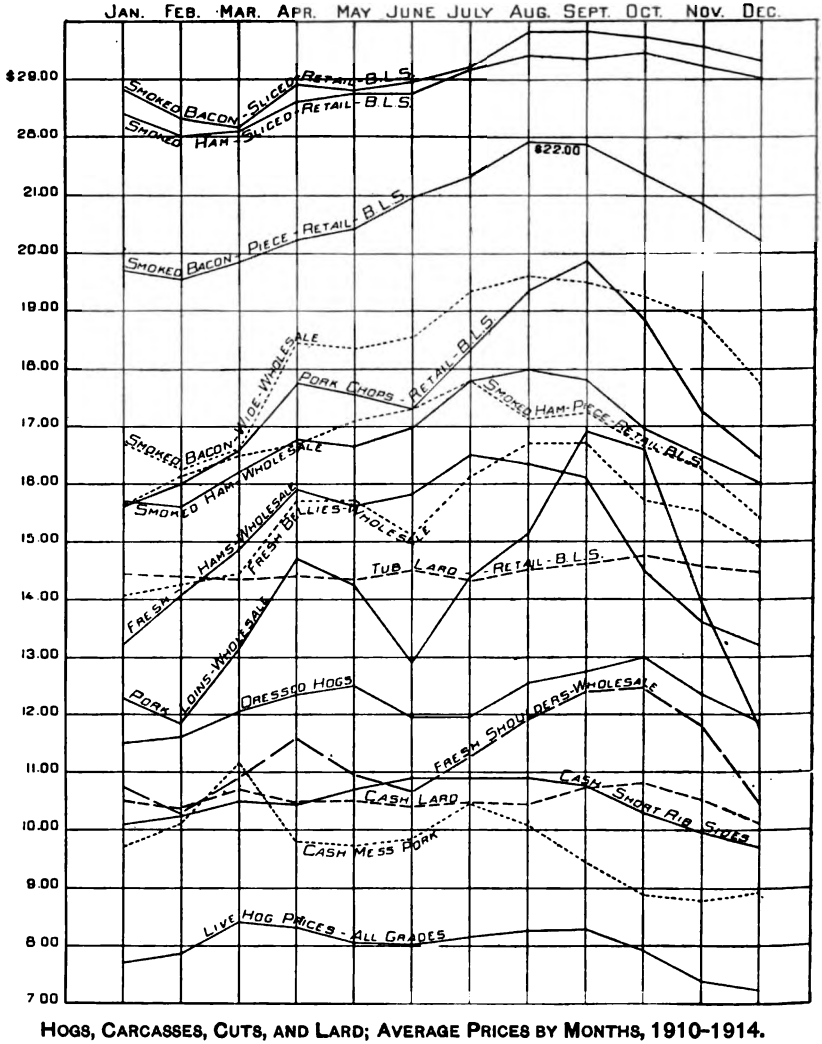

HOGS, CARCASSES, CUTS, AND LARD; AVERAGE PRICES BY MONTHS, 1910-1914.

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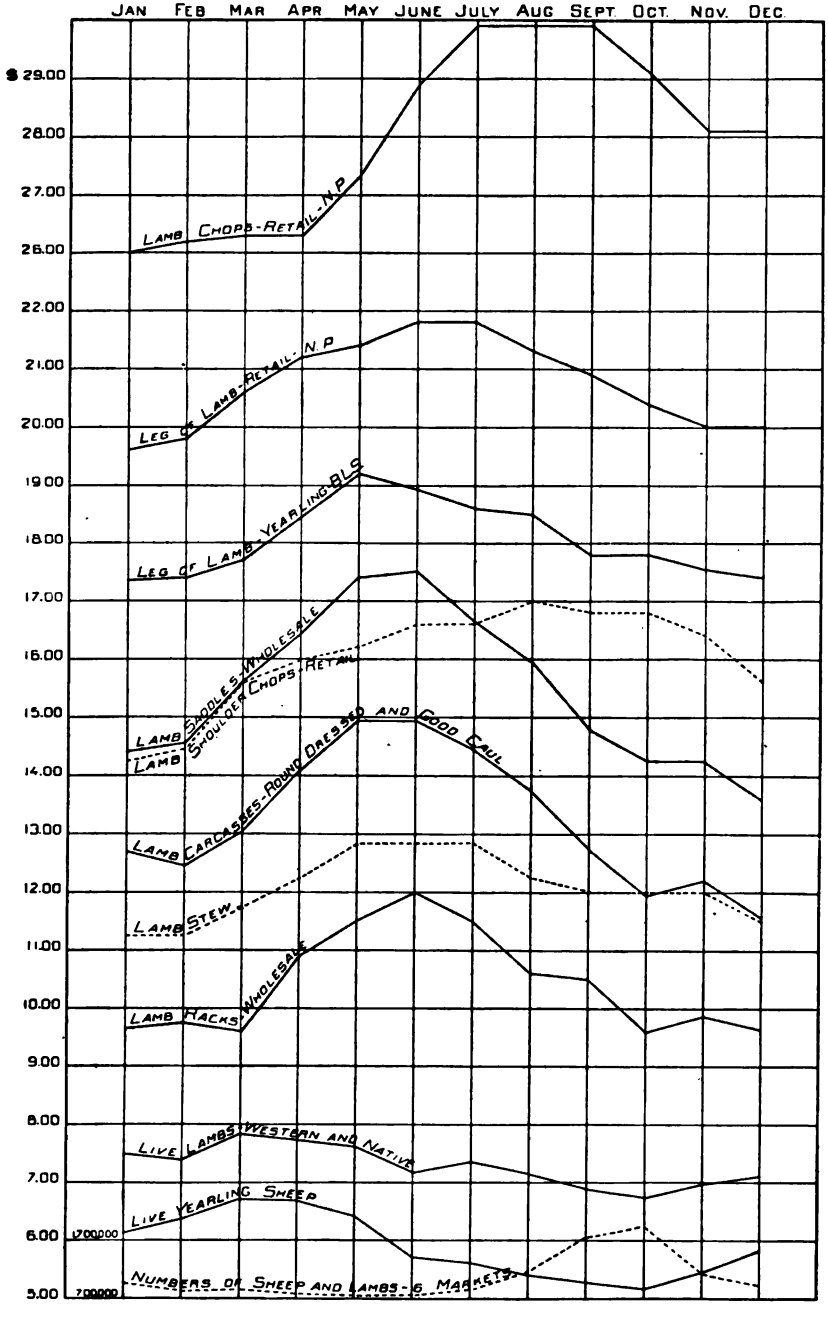

LAMBS AND YEARLINGS, CARCASSES AND CUTS; AVERAGE PRICES BY MONTHS, 1910-1914.
SHEEP AND LAMBS; AVERAGE NUMBER AT SIX LEADING MARKETS, 1910-1914.

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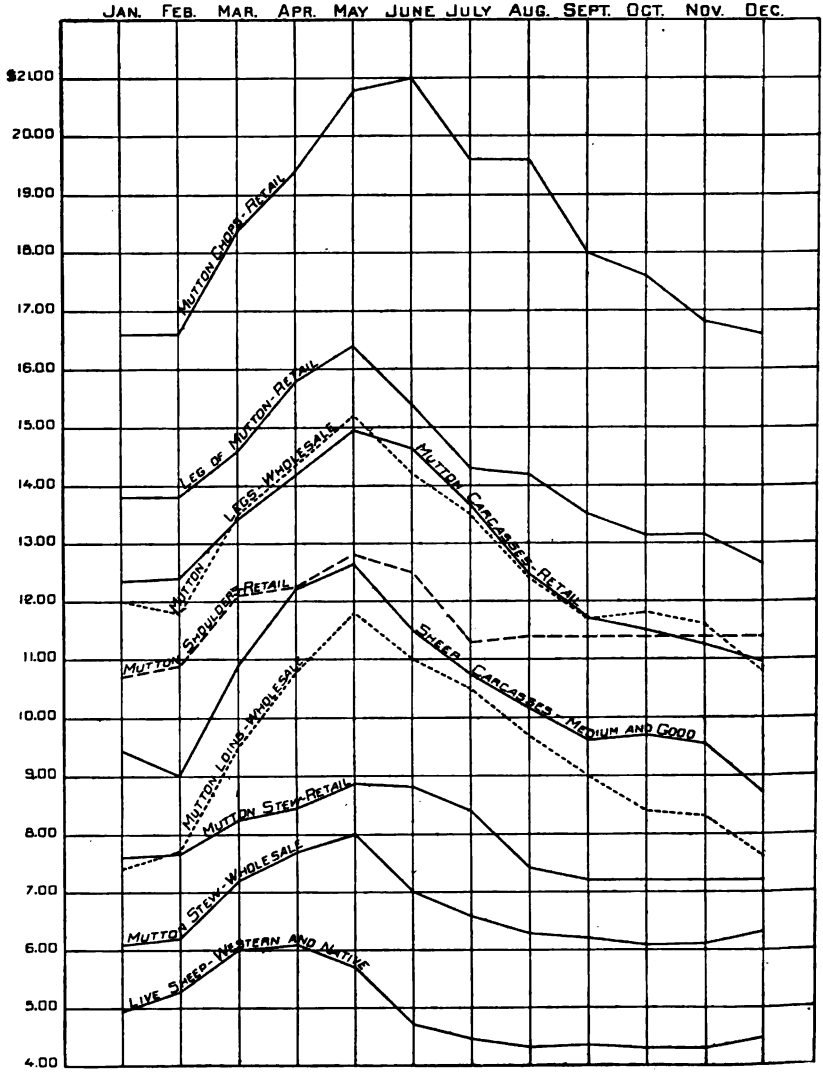

SHEEP CARCASSES AND CUTS; AVERAGE PRICES BY MONTHS, 1910-1914.

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FAT COWS AND HEIFERS.

Plate IX, figure 1, shows the average monthly prices for fat cows and heifers. It is observed that prices of this class of cattle are normally highest in May. The supply of cows and heifers is limited at that time on account of the calving season, and prices are stimulated by the fact that the lower grades of steers also are scarce. A decline in prices in the fall is due partly to the large percentage of range cows and heifers in the butcher stock receipts. The lowest prices are paid for fat cows and heifers in December and January, when heavier beef of the better grades is in greater demand, and the lower grades are plentiful. Another reason for this decline is the fact that large numbers of rejected dairy cows are sent to the market at this time.

CUTTERS AND CANNERS.

The high points in prices paid for cutters and canners are the most irregular in occurrence of those for any class of cattle. Thus the five and ten year monthly price averages do not show any marked high or low spots. The general tendencies, however, resemble those noted in the case of fat cows and heifers, and the reasons assigned are similar. Plate IX, figure 2, shows the average prices by months on this class of cattle.

VEAL CALVES.

The spring run of calves from the dairy districts occurs chiefly from March to May, and accordingly the lowest prices prevail in April. After that time prices advance steadily to the high point in September. The average rise in prices from April to September, as shown here, has been from $7.84 to $10.23, or $2.39. In one month of the largest spring run the prices decline over one dollar and rise more slowly as the run subsides. The marketing of fall calves and reduced demand for veal causes a decline during the remainder of the year. Plate IX, figure 3, shows the monthly prices for five and ten year periods. The average weights of veal calves by months for five years also are shown, and a direct correlation between weights and prices of calves is apparent. The weights most in demand are 120 to 160 pounds, and as a large percentage of spring calves are too small to yield high class veal, a further reason for the low price in April is evident.

HOGS.

A report issued by the Bureau of Crop Estimates in January, 1916,[1] shows that 60 per cent of the pigs born each year are farrowed during March, April, and May. They are sent to the market eight to ten months later, weighing from 200 to 250 pounds. The time of year in which pigs are farrowed largely determines the date at which they will be ready for market, and thus seasonally affects the hog supply. The largest supply of hogs reaches the market in November, December, and January.

The average monthly prices of all classes of hogs, excluding mixed grades, for the years 1910–1914, inclusive, and the average

[1] United States Dept. of Agriculture, Bureau of Crop Estimates, Monthly Crop Report, vol. 2, No. 1, p. 11, 1916.

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monthly price during all these years combined, are shown in Plate X. The five-year average prices show a difference of $1.23 between the months of March and December. Although the five-year monthly average shows March and April to be the high months, the individual years do not exhibit any regularity as to the period in which the highest prices are paid for hogs. The lowest prices, however, are found to be of most frequent occurrence in November and December. By following the curves for different years in Plate X, which indicate prices at Chicago and receipts of hogs at six leading markets, it will be noted that there is a general inverse relation between the variation in receipts and the prices of the same year. There also exists a correlation which shows the general level of prices in the years of largest receipts to be lower than those years in which a smaller number of hogs were marketed.

Plate XI shows the comparative monthly prices at Chicago of light, heavy, and all grades of hogs averaged for five years; the average monthly weight of hogs at Chicago for five years; and the average number of hogs packed at all the more important packing points, covering a period of five years. It is noticeable that light hogs normally sell at a higher price level than heavy grades during the spring and summer, but lower in the winter packing season. A comparison of average weights and prices indicates that when heavy hogs are the higher in price, the average weight is lower, and vice versa. The correlation between the prices of hogs and the numbers packed in the West is striking, the low points in the curves which shows the numbers packed being found in March and September, and the high prices for both light and heavy hogs, coinciding with those months. The reverse is true as regards the months in which the largest numbers and the lowest price averages are found.

SHEEP AND LAMBS.

Plate XII shows the average weekly prices for lambs during the five years 1910–1914. During this period prices have risen, on the average, $1.22 per hundredweight from the lowest point, the first week in November, to the highest, the last week of March. The average difference between prices prevailing in March and in October or November, the high and low points in the year's prices on sheep (native and western combined), has been the difference between $4.29 and $6.08, or $1.79 per hundredweight.

Plate XIII illustrates the average monthly prices at Chicago during each year from 1910 to 1914 on lambs (native and western combined); the five-year monthly average Chicago prices of sheep and lambs, respectively; the average weight of sheep and lambs by months at Chicago; and the average receipts of sheep by months at six leading markets. The maximum receipts of sheep and lambs and the minimum average weights and prices which are noted in September and October are due largely to the heavy fall run of sheep and lambs from the Western States.

RELATIVE PRICES OF LIVE STOCK, MEATS, AND ANIMAL BY-PRODUCTS.

In order to compare the foregoing prices of meat animals with the corresponding prices on carcasses, cuts of meat, and by-products, the data illustrated by the following curves have been compiled

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with reference to the products of beef steers, cows, and heifers, hogs, and sheep and lambs, respectively. The live-stock prices are from the same sources as those used in the preceding section. Quotations on meats and by-products are from trade journals and bulletins of the United States Department of Labor.[1] As explained in connection with the seasonal variations in prices of live stock, it should be borne in mind that the tendencies shown by the charts relative to monthly average prices of meat are due in part to differences in grade of the various products in question, as well as to variations in supply and demand. It should be stated also that comparatively little attention as yet has been given to the matter of reporting accurate and detailed quotations on the various classes and grades of meat, and the accompanying data are to be regarded merely as indicative of general tendencies and, approximately, of the margins between the classes of animals and products which they represent.

BEEF STEERS.

Monthly average prices of beef steers of all weights, beef carcasses, and wholesale and retail beef cuts are plotted in Plate XIV. It will be noted that quotations on the carcasses and cuts of meat, both wholesale and retail, follow the same general tendency with some exceptions as prices of live steers, being highest in the fall and lowest in the early winter. Variations in carcass beef prices tend to occur from one to two months later than those of live steers, and similar conditions are noted with reference to wholesale and retail cuts, respectively. As would be expected, the fluctuations are relatively least in the case of retail cuts, and are less pronounced, on a percentage basis, with respect to carcasses than live cattle.

On the whole the correlation between live stock and meat prices shown by these summaries is closer than generally is understood. It must be borne in mind, however, that daily fluctuations in live-stock quotations are frequent and sometimes violent, while meat prices from day to day follow more closely the general averages shown. Consequently the curves should not be interpreted as minimizing the important matter of variations within the monthly averages, but merely as indications of periodical price movements.

An adequate discussion of certain variations from the normal tendency, as noted relative to wholesale loins, ribs, and oleo stock, which are due to differences both in demand and quality of the supply, would require more extended investigations than have been conducted as yet. Generally speaking the cheaper cuts, such as chucks and rounds, are found to follow more nearly uniform price levels than the higher-priced cuts, such as loins and ribs, both at wholesale and retail. The figures for each year bear out the general conclusions indicated by the five-year averages shown by the curves. The foregoing remarks also apply, as a rule, to other classes of animals and their products, as shown by the following data (Pls. XV to XVIII) relative to "butcher cattle," hogs, sheep, and lambs. Brief comments on those figures therefore will be sufficient for the present purpose.

[1] Live-stock prices illustrated by Plates XIV to XVII were compiled from the Chicago Daily Farmers and Drovers Journal, Yearbooks of Figures, 1910 to 1914. Prices of carcasses and wholesale cuts were compiled from files of the National Provisioner, and retail meat prices from bulletins of the United States Department of Labor, Bureau of Labor Statistics, except where otherwise indicated. N. P. denotes National Provisioner; and B. L. S., Bureau of Labor Statistics.

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Prices on cow carcasses and on wholesale cow chucks reach the high point in May, the same as live cows (see Pl. XV). Rounds are highest a month later, while cow loins and ribs have a tendency to decline in midsummer and sell highest in early fall, following a course similar to that of prices on steer loins and ribs. Heifer carcasses tend to average highest in late fall, and lowest in midwinter. Wholesale quotations on heifer cuts, and prices of retail cuts from heifers and cows were not accessible in such form as to be comparable with the data which Plate XV represents, but it is believed that the general tendencies of the retail prices should be similar to those shown in Plate XIV.

PORK.

Prices of dressed hogs and of various wholesale and retail cuts, in comparison with live-hog prices, are shown in Plate XVI. It is observed that the quotations on hog carcasses follow the same general trend as live hog prices in that they are relatively high in the spring and fall, reduced in midsummer, and at a minimum in December and January. The average advances and declines on live hogs, however, precede those quoted on hog carcasses by one to two months.

The hog products on which futures are bought and sold on the board of trade, viz, short rib sides, mess pork, and lard, vary in average price along a course intermediate between that of live and that of dressed hogs. The same is true, generally speaking, of the various wholesale and retail cuts. The correlation is most nearly uniform in the case of wholesale fresh pork loins and shoulders, and retail pork chops; the latter being cut from the two former. Prices on cured meats, such as smoked hams and bacon, both wholesale and retail, show the least degree of correlation with the general trend.

LAMB.

Prices of lamb carcasses, as shown in Plate XVII, reach their maximum in May and June and their minimum in December, following about two months after the corresponding variations in live lambs and yearlings from which they are obtained. Wholesale lamb cuts also tend to sell highest at a period one to two months later than carcasses of lamb, and a still more pronounced tendency in the same direction applies to retail cuts. The relatively high average prices on lamb chops during July to September indicate in part the demand for small cuts of lamb as a hot-weather meat, and are due also to the high grades of lamb available at that period.

MUTTON.

A comparison of wholesale and retail mutton prices with those of live sheep (Pl. XVIII) indicates general tendencies very similar to those which are characteristic of lambs, excepting that retail prices correspond much more closely to wholesale and live mutton quotations. Retail mutton chops decline during the summer months, when lamb chops are high; and it is observed that both dressed carcasses and wholesale cuts of mutton respond more rapidly to changes in the sheep market than in the case of lambs. In fact, the average prices

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of sheep and mutton show the closest correlations of any class of meat animals and their products considered in this summary. The tendency for cheaper cuts, such as mutton and lamb stew, to sell at more uniform prices than the more expensive meats also is illustrated by these plates.

MARGINS ON SELECTED LOTS OF CATTLE.

The investigations described in the following pages were conducted for the purpose of securing data on the relative cost of the different factors or steps in the processes of marketing meat animals and distributing their products and by-products; also to show the proportions in which the consumer's dollar is distributed among the respective classes of interests concerned. The data to be presented consist of marketing records of typical lots of cattle and of the beef and by-products yielded by them, which records were obtained by means of personal investigation in the fall of 1914. The lots were chosen to illustrate various types of animals and different markets and sections of the country. The records represent the various transactions and operations involved in the handling of meat animals and their products through the consecutive stages of distribution from the producer to the consumer, including the shipment, handling, sale, and slaughter of the live animals and the wholesale and retail disposition of the meat. Abnormal conditions created by the European war and the epidemic of foot-and-mouth disease, both of which occurred during the progress of the investigations, curtailed the work that had been planned. The data, however, represent the first extensive investigations ever conducted for the purpose of tracing the disposal of meat animals in this way, so far as the Department of Agriculture is aware. These investigations were confined to cattle in order to render the results somewhat comparable and in consideration of the limited time available for the work. Owing to the volume and detail of the data contained in the records of the various shipments, they have been condensed and summarized for the purposes of the text, and the itemized statements are given for reference. The subject will be presented in two divisions, dealing with animals sold at centralized and local markets, respectively.

Cattle Shipped to Centralized Markets.

The investigation of shipments which were marketed at the large stockyard centers began in most instances with a personal inspection of the delivery and loading of the cattle at the local railroad shipping stations. Some of the lots were selected at the markets, the facts concerning their previous handling being furnished by the owner or by the commission firm to which the cattle were consigned. In each case the slaughter test was supervised by one or more of the writers and representative carcasses of the lot were traced in person to the branch houses and retail markets through which they were distributed.

The various lots were marketed during the period from August to November, 1914. Early in November it became necessary to discontinue the investigations at centralized markets on account of the quarantines which were established to prevent the spread of

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foot-and-mouth disease; for this reason some of the more important markets and live-stock growing and feeding sections are not represented in the following records.

Some of the weights and prices could be secured only indirectly through the courtesy of the packers and meat dealers concerned, and although they are believed to be substantially correct, they must be regarded only as results of preliminary investigations on this complex subject.

Nine lots of cattle which were marketed at the large stockyards centers are comprised in the accounts summarized in this section. The grades of cattle and their sources and disposition are described under each lot.

SUMMARY OF ACCOUNTS.

The itemized accounts of the nine shipments of cattle, as given on pages 73 to 98, are divided, in each instance, into three parts, viz, (1) account sales on live cattle, (2) slaughtering and wholesaling of beef and by-products, and (3) retail meat market accounts. These accounts typify the nature and amounts of the various expenses involved in marketing live cattle under characteristic conditions, and the relative returns realized on beef products and by-products by wholesale packers and retail dealers. The cost of operation is not shown by these accounts, and although data on operating expenses were obtained relative to all of the lots, the figures as a whole on that point are not regarded as sufficiently well substantiated nor complete to warrant their publication at this time.

In considering the returns shown by the wholesale and retail beef accounts, it is important to bear in mind that the beef trade was in a depressed condition in keeping with other lines of business during the fall months, following the opening of the European war, at which time these records were taken. Although both cattle and beef prices were relatively high, the demand was abnormally small, and the margins shown by these accounts, both wholesale and retail, are therefore materially lower in general than is the case under normal conditions.

In addition to the actual accounts on each lot as a whole, the statements also are computed to terms of one animal in each instance as a basis for comparison. A summary of the latter statements is contained in Table 42, which shows the total proceeds of beef and by-products per head for each lot, and the percentages of the total returns received by the stockman, by the transportation and market interests, by the packer and by the retailer, respectively. These ratios must not be misconstrued as percentages of profit. They represent only the proportions of the final returns, i. e., the receipts for beef at retail and by-products at wholesale, which are comprised in the gross amount retained by each of the four classes of interests concerned. Conclusive data on net profits realized are not yet available.

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TABLE 42.—*Distribution of proceeds of nine lots of cattle marketed through centralized markets, including beef and by-products.*

Item.	Lot 1.	Lot 2.	Lot 3.	Lot 4.	Lot 5.	Lot 6.	Lot 7.	Lot 8.	Lot 9.
Amount per head:									
Returns to producer	$155.06	$142.18	$89.67	$57.17	$99.71	$75.62	$89.26	$37.82	$68.84
Shipping and marketing expenses	2.85	2.51	7.19	7.16	2.43	2.38	3.41	2.80	1.65
Packers' gross margin[2]	16.50	7.22	12.53	6.24	4.96	1.72	8.57	3.39	5.78
Retailers' gross margin[2]	21.12	14.06	54.58	[1] 1.35	19.31	12.91	30.01	12.29	12.24
Total	195.53	165.97	163.97	71.95	126.41	92.63	131.31	56.30	88.51
Percentage basis:	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Returns to producer	79.29	85.67	54.69	79.49	78.88	81.64	67.97	67.18	77.78
Shipping and marketing expenses	1.46	1.51	4.38	9.95	1.92	2.57	2.60	4.97	1.86
Packers' gross margin[2]	8.44	4.35	7.64	8.68	3.92	1.86	6.53	6.02	6.53
Retailers' gross margin[2]	10.81	8.47	33.29	1.88	15.28	13.93	22.90	21.83	13.83
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[1] Jobber.
[2] These margins are the gross differences between cost and proceeds in each instance; hence they represent all expenses plus profits.

From the preceding recapitulation of accounts it will he noted that 54 to 85 per cent (omitting decimals) of the gross returns was received by the stockmen; 1.5 to 5 per cent, and in one lot, 10 per cent consisted in shipping and stockyards expenses; approximately 2 to 8.5 per cent went to the packer; 8 to 33 per cent to the retailer, and in one instance less than 2 per cent to a jobber. The striking variation shown by the accounts of the different lots are due in part to differences in the distances the cattle and beef were shipped, as well as in classes of trade and conditions under which the products were sold. Considering these variations it may be said that the distribution of returns indicated by the data is approximately two-thirds to three-fourths to the stockman, 3 to 4 per cent shipping and stockyards expense, 5 to 6 per cent packing and wholesale distribution, and 15 to 20 per cent retailing.

Again, it should be remembered that these figures are not margins of profit. Reference to the itemized accounts will show that the retailer's gross margin, based on wholesale cost of the beef, varied from 5.74 to 61.81 per cent, the average being 26.32 per cent. Likewise, the cost of marketing live cattle, including shipping and marketing expenses, varied from 1.8 per cent in lot 2 to 12.5 per cent in lot 4. Similar computations from data on the cost of marketing baby beef steers [1] indicate marketing expenses of 1.5 to 3.5 per cent of the value of the cattle.

Further, the spread between prices of live stock and meats usually is wider than at the time of these investigations. Consequently the above proportions charged to the stockmen and to shipping and marketing expenses are larger, and those shown for the packer and retailer are somewhat smaller than under normal conditions, but, on the whole, the range of relative returns shown by the above summary indicates approximately the extent to which the different interests participate in the cost of marketing cattle and the distribution of beef.

In the absence of similar data on actual shipments of hogs and sheep, the following statistics, compiled at the University of Minne-

[1] See Report No. 111 of this series, p. 64.

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sota [1] with reference to animals from that State marketed and slaughtered at South St. Paul, are cited for comparison.

TABLE 43.—*Summary of marketing costs and distribution of gross returns for a 1,000-pound beef, a 230-pound hog, and an 80-pound sheep on the basis of the consumer's price.*

	Cattle.		Hogs.		Sheep	
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Farmer receives	$60.07	60.5	$18.01	60.2	$4.53	62.2
Freight, yardage, feed, etc	2.43	2.4	.62	2.1	.27	3.7
Packer's gross returns	11.21	11.3	4.59	15.4	.87	12.0
Retailer's gross returns	25.55	[a] 25.8	6.67	[a] 22.3	1.61	[a] 22.1
Total value	99.26	100.0	29.89	100.0	7.28	100.0

[a] It should be noted that these returns for retailers are expressed as per cents of the total receipts; i. e., on final retail price of carcass plus the amounts received by packers for by-products. They are not comparable with the retailers' cost of doing business, and should be used with care.

CATTLE MARKETED LOCALLY.

Records of cattle sold to local butchers, including disposal of the beef and by-products, were obtained at various places in five States representing different sections of the country. The plan of the investigation was similar to that described in the preceding section. The investigations were conducted in November and December, 1914.

A farmers' cooperative packing company purchased and slaughtered the cow marketed at La Crosse, Wis. (lot 11). The animal slaughtered at Paris, Tex. (lot 12), was handled at the municipal abattoir, which is one of the few city-owned slaughtering plants in the United States. The remainder of the investigations in this group relate to local butchers who both slaughtered the animals and retailed the meat. Similar investigations were conducted at points in Minnesota, Illinois, and Michigan, but portions of the data pertaining to the proceeds of the beef were so incomplete or unreliable that the records were not considered suitable for publication. Itemized accounts on the five animals used in these investigations are given on pages 94 to 98, and a recapitulation is shown by Table 44:

TABLE 44.—*Distribution of proceeds of five lots of cattle marketed locally, including beef and by-products.*

	Lot 10.	Lot 11.	Lot 12.	Lot 13.	Lot 14.
Amount per head:					
Returns to producer	$92.85	$43.20	$45.38	$66.95	$66.00
Gross margin to retail butchers	17.79	[a] 11.84 12.81	27.91	29.80	22.46
Total	110.64	67.85	73.29	96.75	88.46
Percentage basis:	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Returns to producer	83.93	63.67	61.92	69.20	74.61
Gross margin to retail butchers	16.08	[a] 17.45 18.88	38.08	30.80	25.39
Total	100.00	100.00	100.00	100.00	100.00

[a] Gross margin of cooperative packing company.

[1] Warner, K. F., The Marketing of Live Stock Products in Minnesota (studies in the Social Sciences, No. 4, pp. 15–33).

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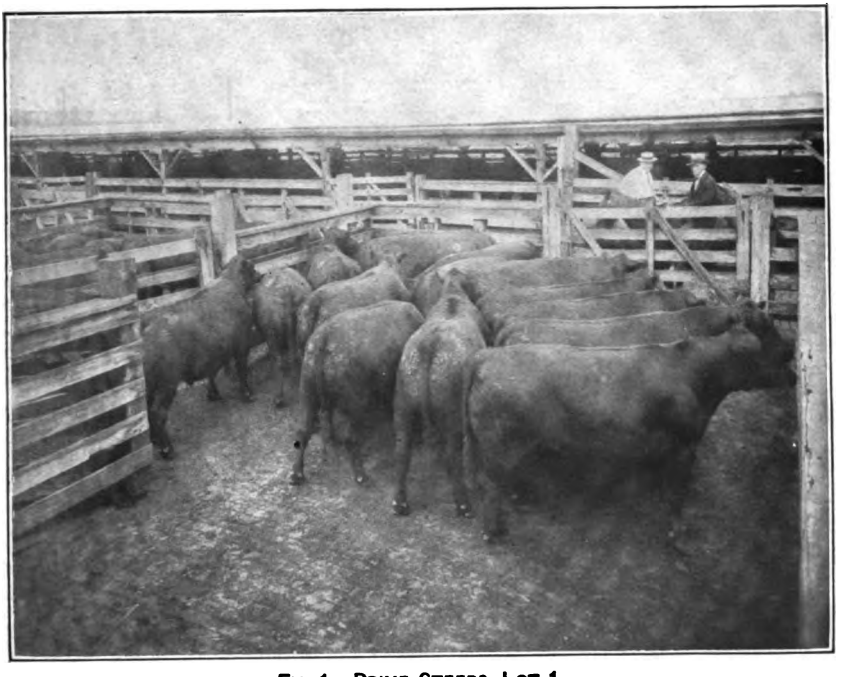

FIG. 1.—PRIME STEERS, LOT 1.

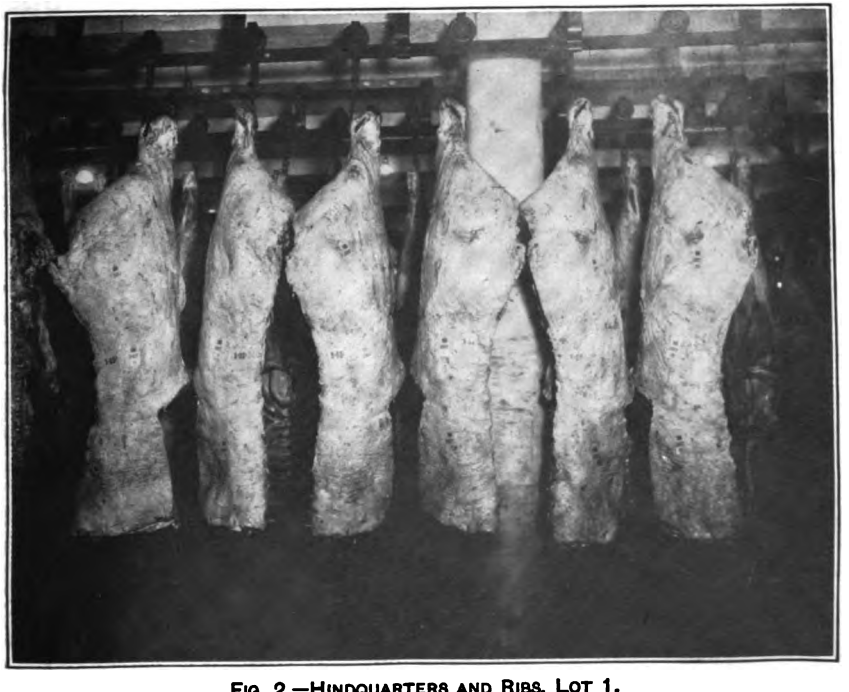

FIG. 2.—HINDQUARTERS AND RIBS, LOT 1.

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FIG. 1.—DROVE OF GOOD WESTERN STEERS FROM WHICH LOT 3 WAS SELECTED.

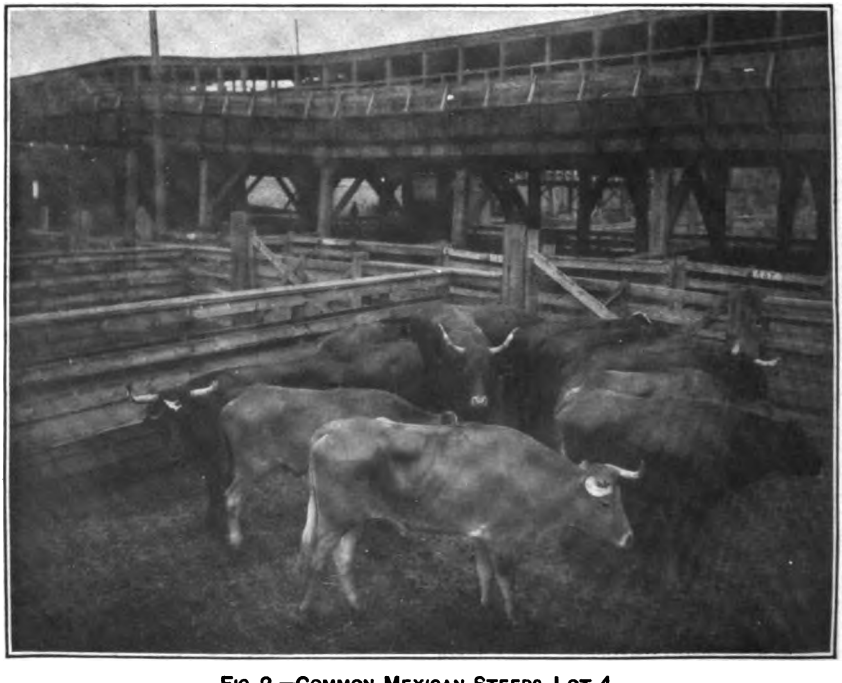

FIG. 2.—COMMON MEXICAN STEERS, LOT 4.

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From 62 to 84 per cent of the gross returns on these cattle were received by the owner; while the retail butcher's proportion of the proceeds was from 16 to 38 per cent. These accounts, together with estimates from other sources, indicate that farmers ordinarily receive about two-thirds and the retailer about one-third of the total proceeds of cattle killed by local butchers. In general it is apparent that farmers receive smaller relative returns from cattle marketed locally than from those that are shipped to centralized markets. The ratios appear to be determined to some extent by the grade of the cattle as well as the method of marketing, the farmer's share being smaller according as the cattle are of lower grade. The results strongly indicate, however, that the saving of the freight, stockyards charges, commissions, and other expenses, which saving is effected by selling locally, usually is absorbed by the butcher and does not find its way to the producer.

Itemized Accounts.

Lot No. 1.

Lot No. 1 consisted of one carload, containing 18 prime Aberdeen Angus steers (see Pl. XIX, figs. 1 and 2), bred and fed by the owner in Henry County, Ill. They were calved in the spring of 1912, suckled their dams on pasture till weaning time, and received grain and hay through the following winter. The next summer they ran on pasture and were then fed clover and alfalfa hay until January 15, 1914. One-half corn ration was fed the steers until March 1, when a full feed of corn with alfalfa hay was given in the dry lot until marketing.

The steers were shipped from Cambridge, Ill., August 25, 1914, and sold at the Union Stockyards, Chicago, August 26. They were reshipped to New York City on the same date, where they were slaughtered August 30, 1914.

ACCOUNT SALES ON LIVE CATTLE.

18 steers, 26,690 pounds (Chicago weight), at $10.65		$2,842.48
Freight, Cambridge, Ill., to Chicago (railroad weight 25,200 pounds, at $0.126 hundredweight, plus $2 terminal charge)	$33.75	
Yardage, at 25 cents per head	4.50	
Fire insurance, at 10 cents per car	.10	
Hay	1.25	
Commission, $10 per car, plus 5 cents per hundredweight on weight in excess of 23,000 pounds	11.80	
		51.40
Proceeds to shipper		2,791.08

SLAUGHTERING AND WHOLESALING.

18 steers, 26,690 pounds (Chicago weight), at $10.65, shipped to New York alive		$2,842.48
Feed and bedding in cars at Chicago	$4.00	
Feed en route at feeding station	5.00	
Freight, Chicago to New York (at 28 cents per hundredweight)	71.93	
		80.93
Cost of steers delivered at New York City (weight 24,600 pounds)		2,923.41

Proceeds:

Dressed beef.	Number.	Weight.	Price.	Amount.
		Pounds.	*Cents.*	
Plates	34	1,660	13.00	$215.80
Chucks and plates	2	283	15.62	44.25
Chucks	34	4,980	16.41	817.65
Ribs	14	668	18.92	126.05
Hinds	14	2,678	17.79	476.42
Hinds and plates	22	5,922	17.74	1,050.63
Total or average	120	16,189	16.58	2,730.80

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Proceeds—Continued.			
Hides[1]—			
15 spready steer hides, 1,347 pounds, at $15.90 per hundredweight	$214.17		
3 cutthroat native hides, 253 pounds, at $15.40 per hundredweight	38.96		
		$253.13	
Oleo fats,[2] 1,819 pounds, average $8.05 per hundredweight		146.42	
Offal, as per following items		90.16	
Livers, 17 (1 condemned), 212 pounds, at 12 cents per pound	25.44		
Hearts, 18, 77 pounds, at 6 cents per pound	4.62		
Tails, 18, at 10 cents each	1.80		
Tongues, 18, 187 pounds, at $1.05 each	18.90		
Brains, 18, at 8 cents each	1.44		
Sweetbreads, 18, 7 pounds, at 30 cents per pound	2.10		
Melts, 18, at 6 cents each	1.08		
Lungs, 18, at 5 cents per set	.90		
Raw tripe, 396 pounds, at 1½ cents per pound	5.94		
Switches, 18, at 3 cents each	.54		
Cheek meat, 96 pounds, at 9½ cents per pound	9.12		
Head meat, 21 pounds, at 8½ cents per pound	1.78		
Ox lips, 9½ pounds, at 5 cents per pound	.46		
Skull bones, 234 pounds, at $20 per ton	2.34		
Feet, 18 sets, 344 pounds, at $27 per ton	4.64		
Heart caps, 7½ pounds, at 3½ cents per pound	.27		
Blood (estimated 8 pounds per head), 144 pounds, at $40 per ton	2.88		
Tankage (estimated 4 pounds per head), 72 pounds, at $20 per ton	.72		
Tallow (estimated 5 pounds per head), 90 pounds, at 5½ cents per pound	4.95		
	89.92		
Less expense selling small offal, 830 pounds, at 75 cents per hundredweight	6.22		
Green value edible offal		83.70	
Casings—			
Rounds—			
Export, 7 sets, at 26½ cents per set	1.85		
Domestic, 9½ sets, at 20 cents per set	1.90		
Stumps, ¼ set, at 10 cents per set	.02		
Middles, regular, 6½ sets, at 72 cents per set	4.68		
Bungs, 18 sets, at 22 cents per set	3.96		
Weasands, 17 sets, at 6 cents per set	1.02		
Bladders, 17 sets, at 3½ cents per set	.59		
	14.02		
Less expense, 42 cents per set	7.56		
Green value casings	6.46		
Total value of offal		90.10	
Total proceeds to packer			$3,087.86
Gross margin to packer			297.04

RETAIL ACCOUNTS.

1. Dealer at Old Washington Market, New York City.		
Bought 2 hinds and ribs, 632 pounds, at 17½ cents		$110.60
Sold:		
2 ribs, 114 pounds, at 21 cents (consists of 28 cents for first cut, 16 cents for last cut)	$23.94	
2 loins, 159 pounds, at 21 cents	33.39	
2 short loins, 145 pounds	39.15	
2 hips, 100 pounds, at 20 cents	20.00	
2 shins, 36 pounds, at 7 cents	2.52	
Suet, 40 pounds, at 5 cents	2.00	
Flank, 35 pounds, at 7 cents	2.45	
Total, 629 pounds		123.45
Gross margin		12.85
Per cent gross margin, 11.62.		

[1] Basis for figuring hides:

Cured market value of hides	per hundredweight	$21.00
Shrinkage, 20 per cent	$4.20	
Curing expenses	.90	
		5.10
Green value kosher spreadies		15.90
Green value cuthroat natives (½ cent per pound less)		15.40

[2] Basis for figuring fat

Oleo fats, 1,819, pounds—

No. 1 oil, 67 per cent, 13½ pounds yield estimated	$9.045	No. 1 stock, 52 per cent, $11.50	$6.02
		No. 2 stock, 16½ per cent, $11.25	1.85
No. 1 stearine, 3 per cent, 11½ pounds yield estimated	3.795	No. 3 stock, 1½ per cent, 9½ cents	.12
		Tallow, ½ per cent, 6½ cents	.06
	12.840		8.05
Less expense per hundredweight	1.25		
	11.59		

No. 2 oil wotrh one-half cent less than No. 1.

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2. Dealer at Old Washington Market, New York City.

Bought 1 hind and rib (188 pounds hind, 49 pounds rib), 237 pounds, at 17½ cents		$41.48
Sold:		
Ribs, first, 4¾ pounds, at 25 cents	$1.18	
Ribs, second and third, 9 pounds, at 25 cents	2.25	
Ribs, fourth, fifth, and sixth, 17¼ pounds, at 25 cents	4.38	
Ribs, eighth and ninth, short cut, 11 pounds, at 20 cents	2.20	
Plate piece, 4 pounds, at 16 cents	.64	
Round with flank—		
Shin, 12½ pounds, at 10 cents	1.25	
Top round, 25½ pounds, at 26 cents	6.63	
Bottom round, 26½ pounds, at 24 cents	6.36	
Horseshoe, 2½ pounds, at 18 cents	.40	
Outside flank, 4 pounds, at 16 cents	.64	
Flank steak, 3 pounds, at 18 cents	.54	
Trimmings, 2½ pounds, at 18 cents	.40	
Loin—		
Porterhouse steaks, 30 pounds, at 32 cents	9.60	
Sirloin steaks, 25 pounds, at 26 cents	6.50	
Top sirloin, 13¾ pounds, at 25 cents	3.44	
Kidney, 1½ pounds, at 15 cents each	.15	
Suet, 22 pounds, at 5½ cents	1.21	
Shop fat, 14½ pounds, at 3½ cents	.47	
Bones, 7¾ pounds, at 35 cents per hundredweight	.03	
Total, 236½ pounds		48.27
Gross margin		6.79
Per cent gross margin, 16.37.		

3. Dealer at Englewood, N. J.

Bought 4 hinds and ribs, 982 pounds, at 18 cents		176.76
Sold:		
60 pounds shin, at 10 cents	6.00	
20 pounds horseshoe, at 18 cents	3.60	
100 pounds top round, at 28 cents	28.00	
130 pounds bottom round, at 22 cents	28.60	
30 pounds flank, at 20 cents	6.00	
28 pounds cod fat, at 4½ cents	1.26	
40 pounds suet, at 4½ cents	1.80	
74 pounds top sirloin, at 22 cents	16.28	
180 pounds short loins, at 30 cents	54.00	
200 pounds ribs, at 24 cents	48.00	
120 pounds hips, at 25 cents	30.00	
982 pounds (total)		223.54
Gross margin		46.78
Per cent gross margin, 26.47.		

4. Dealer, East One hundred and seventeenth Street, New York City.

Bought 1 kosher chuck, 145 pounds, at 16½ cents		23.93
Sold:		
5 pounds fat, at 2¾ cents	.14	
12 pounds fat, at 3¾ cents	.45	
26 pounds meat, at 28 cents	7.28	
82 pounds meat, at 22 cents	18.04	
20 pounds bones given with meat		
145 pounds (total)		25.91
Gross margin		1.98
Per cent gross margin, 8.27.		

SUMMARY OF STATEMENTS ON LOT 1.

[On basis of 1 animal.]

Shipment and marketing of live cattle:		
Returns per steer at Chicago, 1,483 pounds, at $10.65 per hundredweight		$157.94
Marketing expenses—		
Freight and terminal switching	$1.86	
Yardage	.25	
Feed and insurance	.08	
Commission	.66	
		2.85
Proceeds to producer		155.09
Slaughtering and wholesaling:		
Cost of live steer to packer	157.94	
Freight, bedding, and feed to New York City	4.50	
Gross cost of steer at New York		162.44
Proceeds—		
Beef, 899.4 pounds, average 16.86 cents	151.64	
Hide, 88.8 pounds, average 15.82 cents	14.06	
Oleo fat, 101.1 pounds, average 8.05 cents	8.13	
Offal	5.01	
		178.84
Gross margin to packer		16.40

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Retailing:	
Cost of beef to retailer	$151.64
Proceeds of beef[1]	172.76
Gross margin to retailer	21.12

Lot No. 2.

Two carloads containing 34 choice 2-year-old Shorthorn type steers comprised lot No. 2. They had been bought as feeders at Chicago, February 6, 1914. They were fed in the dry lot on shock corn from Ferbruary 8 to April 1, after which they received a full feed of ear corn, clover hay, and cottonseed cake.

The cattle were shipped from Scottland, Ill., August 25, 1914, and sold at the Union Stock Yards, Chicago, August 26. On the same date they were shipped to New York City and slaughtered August 30, 1914.

ACCOUNT SALES ON LIVE CATTLE.

35 steers, 49,810 pounds (Chicago weight), at $10.35	$5,155.33	
34 steers,[2] 47,530 pounds (Chicago weight), at $10.35	4,919.35	
1 steer, 1,270 pounds, at $10.35	131.44	
1 steer, 1,090 pounds, at $8	87.20	
1 steer, 960 pounds, retained for inspection		
		10,293.32
Freight, Scotland, Ill., to Chicago, railroad weight, 4 cars, 98,800 pounds, at 10.8 cents per hundredweight, plus $2 per car terminal charge	114.71	
Yardage, at 25 cents per head	18.00	
Fire insurance, 4 cars, at 10 cents per car	.40	
Tame hay, 300 pounds	3.75	
Commission, $10 per car, plus 5 cents per hundredweight on weight in excess of 23,000 pounds per car	43.85	
		180.71
Proceeds to shipper		10,112.61

SLAUGHTERING AND WHOLESALING.

34 steers, 47,530 pounds (Chicago weight), at $10.35		$4,919.35
Hay and bedding in cars at Chicago	$4.00	
Freight, Chicago to New York, at 28 cents per hundredweight	135.31	
Feed en route at feeding station	3.07	
Hay in pens at New York	1.49	
		143.87
Cost of steers delivered at New York City		5,063.22

Proceeds:

Dressed beef.	Number.	Weight.	Price.	Amount.
		Pounds.	*Cents.*	
Chucks and plates	58	10,247	15.31	$1,569.03
Plates	10	441	13.53	59.69
Chucks	9	1,086	15.90	173.22
Short chucks	1	61	15.00	9.15
Shoulder and brisket	1	77	14.50	11.17
Hinds and ribs	68	16,273	16.01	2,605.72
Total or average	147	28,185	15.04	4,427.98

Hides:			
5 butt branded	387 pounds, at 14.97 cents per hundredweight		$57.93
7 coloradas	551 pounds, at 14.82 cents per hundredweight		81.66
22 spreadies	1,857 pounds, at 16.09 cents per hundredweight		298.79
31 hides	2,795 pounds		$438.38
Oleo fats, 3,342 pounds oil fats, at $8.12 per hundredweight			271.37

[1] Proceeds are based on average gross margin as follows:

	Per cent.
Average margin on hinds and ribs (57.24 per cent of carcass weight)	18.15
Average margin on chucks and plates (42.76 per cent of carcass weight)	8.27
Average margin based on weight of carcass	13.93

[2] 34 steers comprised in following statements.

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Proceeds—Continued.

Offal:		
Head meat, 219 pounds, at 7½ cents per pound	$16.43	
Livers, 31 pieces, 382 pounds, at $11.09 per hundredweight	42.36	
Hearts, 34 pieces, at 23 cents each	7.82	
Tails, 34 pieces, at 9 cents each	3.06	
Brains, 32 pieces, at 9 cents each	2.88	
Sweetbreads, 34 pieces, 9½ pounds, at 27 cents per pound	2.56	
Beef tenders, 34 pieces, 76 pounds, at 11 cents per pound	8.36	
Lungs, 34 pieces, at 4 cents each	1.36	
Melts, 34 pieces, at 5 cents each	1.70	
Tongues, 32 pieces, 276 pounds, at $12.37 per hundredweight	34.14	
Bellies, 34 pieces, at 20 cents each	6.80	
Casings, 34 sets, at 50 cents	17.00	
Feet, 136 pieces, 635 pounds, at $1.22½ per hundredweight	7.78	
Skulls, jaws, and tops, 32 pieces, 475 pounds, at 1 cent per pound	4.75	
Blood, at 13½ cents per head	4.59	
Tankage, at 20 cents head	6.80	
Switches, 24, at 4 cents each	1.36	
Wind pipes, 30 pounds, at ¾ cents per pound	.23	
Pizzles, 15 pounds, at 1 cent per pound	.15	
Livers, 46 pounds, at 10 cents per hundredweight	.05	
Heads, 84 pounds, at 95 cents per hundredweight	.80	
		$170.98
Total proceeds to packer		5,308.71

RETAIL ACCOUNTS.

1. Dealer on East Seventeenth Street, New York City.

Bought 4 hinds and ribs, 908 pounds, at 16 cents		$145.28
Sold:		
12 pounds flank stew, at 14 cents	$1.68	
10 pounds flank steak, at 18 cents	1.80	
5 pounds kidneys, at 12 cents	.60	
39 pounds fat and suet, at 5 cents	1.95	
17 pounds shop fat, at 2 cents	.34	
160 pounds ribs, at 18½ cents	29.60	
62 pounds shins, at 6 cents	3.72	
8 pounds soup bones	.....	
95 pounds top rounds, at 19 cents	18.05	
137 pounds bottom rounds, at 19 cents	26.03	
205 pounds hips, at 18½ cents	37.93	
168 pounds short loins, at 19 cents	31.92	
918 pounds (total)		153.62
Gross margin		8.34

Per cent gross margin, 5.74.

2. Dealer on Seventh Avenue, near One hundred and twenty-fourth Street, New York City.

Bought 1 hind and rib,[1] 230 pounds, at 17 cents		$39.10
Sold:		
28½ pounds sirloin steak, at 30 cents	$8.55	
27 pounds porterhouse steak, at 34 cents	9.18	
17 pounds top round, at 28 cents	4.76	
12½ pounds bottom round, at 24 cents	3.00	
19 pounds top sirloin, at 20 cents	3.80	
19½ pounds rump, at 19 cents	3.66	
7½ pounds horseshoe, at 18 cents	1.35	
2¾ pounds flank steak, at 20 cents	.55	
5 pounds outside flank, at 14 cents	.70	
11 pounds shin beef, at 10 cents	1.10	
13 pounds suet, at 5 cents	.65	
7½ pounds flank fat, at 5 cents	.38	
1½ pounds kidney, at 14 cents	.18	
6¾ pounds shop fat, at 2½ cents	.17	
9 pounds bones	.00	
25½ pounds rib, at 24 cents	6.12	
17½ pounds rib, at 18 cents	3.15	
230 pounds (total)		47.30
Gross margin		8.20

Per cent gross margin, 20.97.

[1] This test represents 6 hinds and ribs, 1,402 pounds of same lot bought by this dealer.

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3. Dealer on Columbus Avenue, near Seventieth Street, New York City.

Bought 2 hinds and ribs,[1] 455 pounds, at 16½ cents		$75.08
Sold:		
4 pounds flank steak, at 22 cents	$0.88	
60 pounds suet, at 6 cents	3.60	
10 pounds flank, at 15 cents	1.50	
2 pounds kidneys, at 15 cents	.30	
30 pounds top sirloin, at 22 cents	6.60	
40 pounds round steak, at 25 cents	10.00	
50 pounds rump steak, at 22 cents	11.00	
15 pounds soup meat, at 20 cents	3.00	
25 pounds legs beef, at 8 cents	2.00	
45 pounds porterhouse steak, at 32 cents	14.40	
45 pounds sirloin steak, at 28 cents	12.60	
45 pounds ribs, at 25 cents	11.25	
30 pounds chuck rib, at 18 cents	5.40	
40 pounds fat, at 2½ cents	1.00	
441 pounds (total)		83.53
Gross margin		8.45

Per cent gross margin, 11.25.

NOTE.—Satisfactory data on retailing of chucks and plates of this lot were not obtainable. The grade of beef being closely similar to that of Lot 1, the retail accounts of chucks and plates from that lot are representative of the corresponding cuts of Lot 2.

SUMMARY OF STATEMENTS ON LOT 2.

[On basis of 1 animal.]

Shipment and marketing of live cattle:		
Returns per steer at Chicago, 1,398 pounds, at $10.35 per hundredweight		$144.69
Marketing expenses—		
Freight and terminal switching	$1.59	
Yardage	.25	
Feed and insurance	.06	
Commission	.61	
Total		2.51
Proceeds to producer		142.18
Slaughtering and wholesaling:		
Cost of live steer to packer	144.69	
Freight, bedding, and feed to New York City	4.23	
Gross cost of steer at New York		148.92
Proceeds—		
Beef, 829 pounds, average 15.71 cents	130.24	
Hide, 82.2 pounds, average 15.68 cents	12.89	
Oleo fat, 98.3 pounds, average 8.12 cents	7.98	
Offal	5.03	
Total		156.14
Gross margin to packer		7.22
Retailing:		
Cost of beef to retailer		130.24
Proceeds of beef[2]		144.30
Gross margin to retailer		14.06

Lot No. 3.

Lot No. 3 consisted of 31 good western steers (see Pl. XX, fig. 1), which had been grazed in the Milk River country of Montana. They were shipped in a trainload of similar cattle which had been shipped as long yearlings from the breeding grounds of Arizona, New Mexico, and Texas, and run in Montana three summers and two winters, being marketed as 4-year-old steers.

At the end of a 10 days' round-up these steers were loaded with 48 cars of cattle and shipped from Malta, Mont., on September 4, 1914. En route they were unloaded for feed, water, and rest at New Rockford, N. Dak., and St. Paul, Minn. They arrived at Chicago September 9, were sold on the same date, and slaughtered the following day at one of the large packing houses. The beef was distributed through branch houses at Boston and Lynn, Mass.; Providence, R. I.; Wilmington, Del.; and Dover, N. J.

[1] This test represents 12 hinds and ribs, 2,674 pounds, of same lot bought by this dealer.

[2] Proceeds are based on average gross margins as follows:

	Per cent.
Average margins on hinds and ribs (57.74 per cent of carcass weight)	12.65
Average margins on chucks and plates (42.26 per cent of carcass weight)	8.27
Average margin based on weight of carcass	10.80

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ACCOUNT SALES ON LIVE CATTLE.

61 steers,[1] (Chicago weight), 74,520 pounds, at $8		$5,961.60
5 steers,[1] 5,730 pounds, at $8		458.40
260 steers, 291,490 pounds, at $7.55		22,007.49
289 steers, 318,000 pounds, at $7.55		24,009.00
17 steers, 18,260 pounds, at $6.80		1,241.68
632 steers (total)		$53,678.17
Freight from Malta, Mont., to Chicago:		
705,800 pounds, at 54 cents per hundredweight	$3,811.32	
Less freight on 17 strays	110.83	
Net freight charge	3,700.49	
Terminal charge, 25 cars, at $2	50.00	
Total		3,750.49
Feed in transit:		
New Rockford, N. Dak	72.00	
South St. Paul, Minn	71.25	
		143.25
Yardage, at 25 cents per head	158.00	
Fire insurance, 24 cars, at 10 cents per car	2.40	
Hay in Chicago yards	97.28	
Commission	390.46	
		648.14
Total		4,541.88
Proceeds to shipper		49,136.29

SLAUGHTERING AND WHOLESALING.

31 steers, 37,530 pounds (Chicago weight), at $8		$3,002.40
Proceeds:		
Beef, 21,841 pounds,[2] as per following items		2,737.76
10 cattle, 6,596 pounds (Boston)	$840.19	
4 cattle, 2,706 pounds (Lynn, Mass.)	336.45	
4 cattle, 2,886 pounds (New York City)	358.63	
7 cattle, 5,103 pounds (Providence, R. I.)	633.91	
4 cattle, 2,856 pounds (Wilmington, Del.)	345.54	
2 cattle, 1,694 pounds (Dover, N. J.)	223.04	
31 cattle, 21,841.	2,737.76	
Hides,[3] 31 heavy Colorado hides, 2,579 pounds, at $15.67 per hundredweight		404.13
Oleo fat, 1,544 pounds, at $7.51 per hundredweight		115.96

Offal.	Weight.	Price.	Amount.	Per cent condemned.	Net amount.
		Cents.			
Livers	374 pounds	8¼	$30.85	10	$27.77
Hearts	137 pounds	6¾	9.25	4	8.88
Tails	40 pounds	6	2.40	1	2.38
Sweet breads	8 pounds	18	1.44	1	1.43
Cheek meat	170 pounds	8¾	14.88	1	14.73
Ear glands	9 pounds	4	.36	1	.36
Head meat	29 pounds	8¾	2.54	1	2.52
Lips	35½ pounds	5	1.78	1	1.91
Brains	30 pounds	6	1.80	1	1.78
Tongues, 31 pieces, at 91 cents each					28.21
Casings	31 sets	50			15.50
Switches	31 pounds	3			.93
Tallow stock, such as pecks, reeds, windpipes, etc., worth 24 cents per M pounds alive					8.88
Tripe, tank value is 7 cents per M pounds alive					2.60
Blood, tank value is 11 cents per M pounds alive					4.07
Heads, tank value is 16 cents per M pounds alive					5.92
Feet, tank value is 16 cents per M pounds alive					5.92
					$133.79

Total proceeds to packer	3,391.63
Gross margin to packer	389.23

[1] This test on 31 steers out of the 66 shown in these two items.
[2] Recapitulation of branch house account sales.
[3] Basis for figuring hides:

Market price cured hides, per hundredweight	$19.50
Deduct for curing expense, per hundredweight	.51
Deduct for cuts, scores, and other defects	.53
Net value cured hides	18.97
Shrink, average 17.4 per cent	3.30
Equivalent price green hides	15.67

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RETAIL ACCOUNT.

1. Dealer at Ipswich, Mass.			
Bought 1 side [1]	331 pounds, at 13 cents		$43.03
Sold: Round and flank	74.87 pounds	$16.03	
Rump	32.31 pounds	10.59	
Sirloin	39.25 pounds	11.08	
Rattle	84.13 pounds	15.74	
Back	65.75 pounds	15.93	
Trimmings	29.50 pounds	.26	
Total	325.81		69.63
Gross margin			26.60

Per cent gross margin, 61.81.

SUMMARY OF STATEMENTS ON LOT 3.

(On basis of 1 animal.)

Shipment and marketing of live cattle:		
Returns per steer at Chicago, 1,211 pounds, at $8 per hundredweight		$96.88
Marketing expenses—		
Freight and terminal switching	$5.93	
Feed in transit	.23	
Yardage	.25	
Feed and insurance	.16	
Commission	.62	
		7.19
Proceeds to shipper		89.69
Slaughtering and wholesaling:		
Cost of live steer to packer		96.88
Proceeds—		
Beef, 705 pounds, average 12.53 cents	88.31	
Hide, 83 pounds, average 15.67 cents	13.04	
Oleo fat, 49.8 pounds, average 7.51 cents	3.74	
Offal, 4.32 cents	4.32	
		109.41
Gross margin to packer		12.53
Retailing:		
Cost of beef to retailer		88.31
Proceeds of beef		142.89
Gross margin to retailer		54.58

Lot No. 4.

Fourteen common Mexican steers (see Plate XX, fig. 2), from the same herd as lot No. 3 comprised lot No. 4. They came as stockers from the range of the late President Madero of Mexico, were shipped to the northern range as long 2-year-olds, and grazed until marketed.

The Mexicans were rounded up and shipped to Chicago in the same consignment as lot No. 3. They were not sold until September 10 and were slaughtered at one of the large packing houses September 11, 1914. With the exception of the ribs, loins, and rounds, which were sold to a jobber in Chicago and distributed by him to restaurants and commissary trade. the beef of lot No. 4 was used for sausage and canning meat.

ACCOUNT SALES ON LIVE CATTLE.

96	steers (Chicago weight),	123,590 pounds, at $8.15 per hundredweight		$10,072.58
113	steers (Chicago weight),	127,390 pounds, at $7.60 per hundredweight		9,681.64
104	steers (Chicago weight),	115,610 pounds, at $7.50 per hundredweight		8,670.75
85	steers (Chicago weight),	94,660 pounds, at $7.50 per hundredweight		7,099.50
35	steers (Chicago weight),	35,650 pounds, at $7.40 per hundredweight		2,638.10
13 [2]	steers (Chicago weight),	12,090 pounds, at $6.85 per hundredweight		828.16
6	steers (Chicago weight),	6,630 pounds, at $7.15 per hundredweight		474.04
5	steers (Chicago weight),	5,680 pounds, at $7.00 per hundredweight		397.60
4	steers (Chicago weight),	3,780 pounds, at $6.00 per hundredweight		226.80
1	stag (Chicago weight)	1,000 pounds, at $6.50 per hundredweight		65.00
1	cow (Chicago weight),	1,180 pounds, at $6.85 per hundredweight		80.83
1	cow (Chicago weight),	1,050 pounds, at $6.85 per hundredweight		71.92
1	heifer (Chicago weight),	1,150 pounds, at $7.25 per hundredweight		83.37
1	stag (Chicago weight),	1,180 pounds, at $5.75 per hundredweight		67.85
1	steer (Chicago weight),	810 (retained).		
1	steer (Chicago weight),	890 (retained).		
468	cattle	532,340		$40,456.14

[1] This account is representative of two sides of same carcass bought by this dealer.
[2] Thirteen steers used in this test, together with one of same grade from another lot.

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Freight from Malta, Mont., to Chicago:			
23 cars, 542,300 pounds, at 54 cents per hundredweight	$2,928.42		
Less freight on 17 strays	105.83		
Net freight charge	2,822.59		
Terminal charge, 18 cars, at $2	36.00		
		$2,858.59	
Feed in transit:			
New Rockford, N. Dak	79.20		
South St. Paul, Minn	91.80		
		171.00	
Yardage, at 25 cents per head		117.00	
Fire insurance, at 10 cents per car		2.30	
Hay in Chicago yards		126.74	
Commission		244.79	
			$3,520.42
Proceeds to shipper			36,937.72

SLAUGHTERING AND WHOLESALING.

14 steers, 13,150 pounds, at $6.85			$900.77
Proceeds:			
Beef, 7,243 pounds, as per following items,[1] $737.60—			
Ribs	680 pounds, at 10 cents	$68.00	
Loins	1,281 pounds, at 12 cents	153.72	
Shank meat	238 pounds, at 11½ cents	27.37	
Shank bones	220 pounds, at 1 cent	2.20	
Clods	340 pounds, at 12 cents	40.80	
Boneless chux	1,163 pounds, at 11¾ cents	136.66	
Chuck bones	276 pounds, at 1 cent	2.76	
Plate bones	171 pounds, at 1 cent	1.71	
Knobs	91 pounds, at 8 cents	7.28	
Buttocks (rounds)	1,867 pounds, at 10½ cents	196.04	
Neck end trimmings	469 pounds, at 11¾ cents	55.10	
Briskets	155 pounds, at 11¾ cents	18.22	
Flank trimmings	170 pounds, at 11½ cents	19.98	
Steaks	32 pounds, at 11¾ cents	3.76	
Fat	52 pounds, at 6 cents	3.12	
Skin	28 pounds, at 1 cent	.28	
Brisket fat	10 pounds, at 6 cents	.60	
Total	7,243 pounds, at average of 10.18 cents		737.60
Hides:[2]			
13 Texas hides, 912 pounds, at 15.38 cents		140.25	
1 s. b. hide, 83 pounds, at 15.15 cents		12.58	
			152.83
Oleo fat,[2] 803 pounds, at 8.20 cents			65.84
Offal:			
14 sets casings, at 15 cents		2.10	
14 tongues, 63 pounds, at 9 cents		5.67	
14 livers, 126 pounds, at 8 cents		10.08	
14 hearts, 35 pounds, at 6½ cents		2.28	
14 ox tails, 14 pounds, at 5½ cents		.77	
14 tripe, at 7½ cents		1.05	
14 sets head and feet, blood and tankage to fertilizer, at 50 cents		7.00	
Tallow, 70 pounds, at 5 cents		3.50	
			32.45
Total proceeds to packer			988.72
Gross margin to packer			87.95

[1] Ribs, loins, and buttocks were sold to jobbers in Chicago. Remainder of carcasses was used for sausage and canned meat.

[2] Basis for figuring hides:

Green weight 13 Texas hides	pounds	977
Green weight 1 s. b. hide	do	88
Deduct 5 pounds per hide for water—		
13 Texas hides, less 65 pounds		912
1 s. b. hide, less 5 pounds		83
Estimated cured weights (18 per cent shrinkage)—		
13 Texas hides, 748 pounds, at 18¾ cents		$140.25
1 s. b. hide, 83 pounds, at 18¾ cents		$12.58
Green value based on value of cured hides—		
13 Texas hides, 912 pounds, value $140.25; value per pound	cents	$15.38
1 s. b. hide, 83 pounds, value $12.58; value per pound	do	$15.15

Caul and ruffle fat, wet, 303 pounds.
Deduct for moisture, 2 per cent, 6 pounds.
Shrunk weight, caul, and ruffle fat, 297 pounds.
Average ratio of caul and ruffle to total weight, oleo fats, 37 per cent.
Computed total weight oleo fats, 803 pounds.

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JOBBERS' ACCOUNT.

1. Dealer, State Street, Chicago, Ill.[1]			
Bought 28 rounds	1,867 pounds, at 10½ cents	$196.04	
28 loins	1,281 pounds, at 12 cents	153.72	
28 ribs	680 pounds, at 10 cents	68.00	
Total	3,828		$417.76
Sold 1,279 pounds loins, at 12½ cents		159.87	
592 pounds ribs, at 10½ cents		62.16	
22½ pounds ribs, at 11 cents		2.47	
19¾ pounds ribs, at 11 cents		2.17	
25½ pounds ribs, at 11 cents		2.80	
16¾ pounds ribs, at 11 cents		1.84	
1,867 pounds rounds, at 11 cents		205.37	
3,822½			436.68
Gross margin			18.92
Per cent gross margin, 4.53.			

SUMMARY OF STATEMENTS ON LOT 4.

[On basis of one animal.]

Shipment and marketing of live cattle:		
Returns per steer at Chicago, 939 pounds, at $6.85 per hundredweight		$64.33
Marketing expenses—		
Freight and terminal switching	$6.11	
Yardage	.25	
Feed and insurance	.28	
Commission	.52	
		7.16
Proceeds to shipper		57.17
Slaughtering and wholesaling:		
Cost of live steer to packer		64.33
Proceeds:		
Beef cuts, 273 pounds, average 18 cents	29.84	
Sausage and canning meat, 244 pounds	22.85	
Total beef		52.69
Hide, 71.1 pounds, average 13.35 cents	10.91	
Oleo fat, 57.4 pounds, average 8.20 cents	4.71	
Offal	2.32	
		70.57
Gross margin to packer		6.24

JOBBER'S ACCOUNT.

Cost of beef to jobber	$29.84
Proceeds of beef	31.19
Gross margin to jobber	$1.35

Lot No. 5.

Lot No. 5 consisted of 100 good Pan Handle (Texas) steers, shipped as 2-year-olds in the spring of 1913 to Greenwood County, Kans., in the famous Flint Hills section and grazed during 1913 and 1914. Such cattle are termed "single wintered Texas-Kansans." When marketed the cattle of lot No. 5 were mostly 4-year-olds.

The steers were shipped from Sallyards, Kans., September 21, where they were sold on the same date and slaughtered September 22, 1914, by one of the large packing companies. The beef was distributed through branch houses in New York City, Brooklyn, Utica, Schenectady, and Syracuse, N. Y.; Jersey City, Newton, and Newark, N. J.; Cleveland and Akron, Ohio; St. Paul, Minn.; and one and one-half carcasses were sold in Kansas City. The bulk of this beef was sold to retail dealers for family trade.

ACCOUNT SALES ON LIVE CATTLE.

100 steers (Kansas City weight), 121,610 pounds, at $8.40		$10,215.24
Freight, Sallyards, Kan., to Kansas City, Mo.:		
117,500 pounds, at 13 cents	$152.75	
Yardage, at 25 cents per head	25.00	
Hay	6.00	
Commission, at 60 cents per head	60.00	
		243.75
Proceeds to shipper		9,971.49

[1] This beef handled by jobbers and sold to restaurant and commission trade in wholesale quantities.

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SLAUGHTERING AND WHOLESALING.

100 steers, 121,610 pounds, at $8.40 ..... $10,215.24

Proceeds:

Beef, 69,079 pounds, as per following items [1]—				
11	cattle,	8,703 pounds (Tenth Avenue, New York City)	$1,074.03	
6½	cattle,	4,865 pounds (Westchester, New York City)	595.97	
10	cattle,	6,851 pounds (Westchester, New York City)	877.18	
9	cattle,	5,452 pounds (Brooklyn)	675.31	
8	cattle,	5,034 pounds (Brooklyn)	638.64	
5	cattle,	3,292 pounds (Utica, N. Y.)	432.11	
5	cattle,	3,515 pounds (Schenectady, N. Y.)	450.69	
7	cattle,	4,838 pounds (Syracuse, N. Y.)	611.98	
10	cattle,	6,898 pounds (Jersey City, N. J.)	898.05	
5	cattle,	3,297 pounds (Trenton, N. J.)	443.93	
5	cattle,	3,519 pounds (Newark, N. J.)	433.27	
7	cattle,	4,864 pounds (Cleveland, Ohio)	621.23	
5	cattle,	3,256 pounds (Akron, Ohio)	400.53	
5	cattle,	3,729 pounds (St. Paul, Minn.)	445.65	
1	cattle,	590 pounds (to freezer)	59.00	
½	cattle,	376 pounds (cut up)	29.08	
100		69,079		8,686.65

Hides: [2]				
12	butt brands,	No. 1, heavy....1,083 pounds, at 14 cents	151.62	
9	side brands,	No. 1, heavy.... 845 pounds, at 13½ cents	114.08	
69	Texas,	No. 1, heavy....5,700 pounds, at 15½ cents	869.25	
10	Texas,	No. 1, light..... 721 pounds, at 13½ cents	97.33	
100		8,349		1,232.28

Oleo fat, 4,856 pounds, at $7.79 per hundredweight [3] $378.28

Offal:

Livers, 86, 1,016 pounds, at 9¼ cents	93.98
Hearts, 100, 401 pounds, at 6¾ cents	27.07
Tails, 100, 139 pounds, at 6⅛ cents	8.51
Tongues, [4] 100, 610 pounds, at 15½ cents	94.55
Brains, 98, 68 pounds, at 6¼ cents	4.25
Sweetbreads, No. 1, 17 pounds, at 16¾ cents	2.84
Sweetbreads, No. 2, 10½ pounds, at 13¾ cents	1.44
Switches, 100, 3 cents each	3.00
Raw tripe, 1,411 pounds, at 1½ cents	21.16
Cheek meat, 437 pounds, ar 9¾ cents	43.16
Head meat, 97 pounds, at 8⅞ cents	8.61
Ox lips, 30 pounds, at 4½ cents	1.35
Skull bones, 1,923 pounds, at $18 per ton	17.31
Feet, 1,516 pounds, at $25 per ton	18.95
Blood, dry, 770 pounds, at $40 per ton	15.40
Tankage, dry, 734 pounds, at $20 per ton	7.34
Tallow, 495 pounds, at 5¼ cents	25.99
	394.91
Less expense selling small offal, 3,093 pounds, at 75 cents per hundredweight	23.20
Total, not including casings	371.71

[1] Recapitulation of branch house account sales.

[2] Basis for figuring hides: Yield, 80 per cent; expenses, 90 cents per cwt.; No. 2 (cut hides) 2 per cent. Cured market value per pound as follows: Butt brands 18½ cents; side brands, 18¼ cents; heavy Texas, 20½ cents; light Texas, 18½ cents.

[3] Basis for figuring oleo fats:

No. 1 oleo oil, 67 per cent, 13¼ cents	$8.79
No. 1 stearine, 33 per cent, 11½ cents	3.80
Market price No. 1, stock	12.59
Less expense	1.25
Green value No. 1 stock	11.34

Yield.

	Per cent.	Price.	Amount.
No. 1 stock	51.75	$11.34	$5.87
No. 2 stock	16.00	11.00	1.76
No. 3 stock	1.25	7¾	.10
Tallow	1.25	6½	.06
Value, per cent, oleo fats			7.79

[4] Gross weight, 878 pounds; yield, 69½ per cent, 610 pounds.

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Proceeds—Continued.		
Casings:		
Round export, No. 1, 44½ sets, at 25 cents	$11.08	
Round export, No. 2, 12 sets, at 21 cents	2.52	
Domestic, 40 sets, at 18½ cents	7.40	
Stumps, 1 set, at 8½ cents	.09	
Middles, regular, 38½ sets, at 70 cents	26.95	
Middles, stump, 1½ sets, at 27½ cents	.41	
Bungs, 100 pieces, at 21½ cents	21.50	
Bladders, 94 pieces, at 3½ cents	3.29	
Wesands, 66 pieces, at 5 cents	3.30	
	76.49	
Less expense, 35 cents per set	35.00	
Value of casings	41.49	
Total value offal		$413.29
Total proceeds to packer		10,710.41
Gross margin to packer		495.17

RETAIL ACCOUNTS.

1. Dealer at Schenectady, N. Y.

Bought one side, 309 pounds, at 14½ cents		$44.81
Sold:		
Fore quarter—		
8 pounds shank beef, at 12½ cents	$1.00	
2 pounds bone, at ½ cent	.01	
2 pounds hamburg steak, at 16 cents	.32	
2 pounds arm piece of beef, at 16 cents	.32	
27 pounds rib of beef, at 22 cents	5.94	
37 pounds plate beef, at 12½ cents	4.63	
1 pound hamburg steak, at 16 cents	.16	
2 pounds bone, at ½ cent	.01	
20 pounds Boston cut of beef, at 20 cents	4.00	
38 pounds shoulder beef, at 20 cents	7.60	
12 pounds neck beef, at 12 cents	1.44	
7 pounds arm piece of beef, at 16 cents	1.12	
2 pounds fat beef, at 3 cents	.06	
2 pounds bone, at ½ cent	.01	
Hind quarter—		
6½ pounds flank, at 16 cents	1.04	
1½ pounds steak, at 22 cents	.33	
6½ pounds cod fat, at 3 cents	.19	
14½ pounds sirloin butt, at 20 cents	2.90	
1 pound skirt steak, at 16 cents	.16	
11 pounds kidney suet, at 5 cents	.55	
1 pound beef kidney, at 10 cents	.10	
2 pounds bone, at ½ cent	.01	
11 pounds rump beef, at 16 cents	1.76	
7 pounds sirloin steak, at 24 cents	1.68	
10 pounds flat bone steak, at 25 cents	2.50	
6½ pounds hip sirloin steak, at 18 cents	1.17	
8½ pounds best porterhouse steak, at 28 cents	2.38	
8½ pounds small porterhouse steak, at 24 cents	2.04	
3½ pounds scraps, at 3 cents	.10	
11½ pounds top round steak, at 25 cents	2.88	
7 pounds bottom round steak, at 24 cents	1.68	
13½ pounds round steak, at 22 cents	2.97	
6½ pounds pot roast, at 16 cents	1.04	
6 pounds soup bone, at 12½ cents	.75	
3½ pounds bone, at ½ cent	.02	
309		52.87
Gross margin		8.06

Per cent gross margin, 17.98.

2. Dealer at Utica, N. Y.

Bought one carcass, 593 pounds, at 13 cents		77.09
Sold:		
25½ pounds sirloin, at 28 cents	7.14	
29½ pounds porterhouse, at 28 cents	8.26	
49 pounds round steak, at 24 cents	11.76	
17½ pounds rump, at 18 cents	3.15	
16 pounds heel, at 18 cents	2.88	
3½ pounds outside flank (stew), at 16 cents	.50	
16 pounds corned beef, at 14 cents	2.24	
39 pounds first cut, at 18 cents	7.02	
10 pounds second cut, at 22 cents	2.20	
53 pounds chuck rib roasts, at 18 cents	9.54	
43 pounds chuck steaks, at 20 cents	8.60	
40 pounds plate beef, at 12 cents	4.80	
16 pounds shoulder clod, at 20 cents	3.20	
33½ pounds shoulder meat and neck, at 16 cents	5.40	
Soup bone knuckles	.95	
68 pounds hamburger, shin meat, at 16 cents	10.88	
Kidneys	.19	
25 pounds suet, at 4½ cents	1.13	
39½ pounds shop fat, at 2½ cents	1.00	
40 pounds bones, at ½ cent	.20	
563½ pounds, total		91.64
Gross margin		13.95

Per cent gross margin, 18.09.

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3. Dealer at Utica, N. Y.

Bought one side, 344 pounds, at 13 cents			$44.72
Sold:			
31	pounds rack, at 18 cents	$5.58	
40	pounds plate, at 10 cents	4.00	
11	pounds fore shank, at 6 cents	.66	
97	pounds chuck, at 15 cents	14.55	
11	pounds flank, at 7 cents	.77	
22	pounds cod and kidney, at 6 cents	1.32	
26	pounds porterhouse steak, at 30 cents	7.80	
25	pounds sirloin, at 24 cents	6.00	
40	pounds round steak, at 26 cents	10.40	
18	pounds hind shank, at 6 cents	1.08	
13	pounds rump, at 16 cents	2.08	
3½	pounds soup bone	.15	
3½	pounds rump trimmings	.06	
340½	pounds, total		54.45
	Gross margin		9.73

Per cent gross margin, 21.75.

4. Dealer on East One hundred and twentieth Street, New York City.

Bought 1 side, 362 pounds, at 12½ cents			45.25
Sold:			
16	pounds top sirloin, at 16 cents	2.56	
23	pounds hip sirloin, at 23 cents	5.29	
29	pounds short loin, at 24 cents	6.96	
5	pounds sirloin steaks (2), at 19 cents	.95	
2	pounds drop tenderloin, at 16 cents	.32	
3½	pounds suet, at 9 cents	.31	
5	pounds trimmings, at 13 cents	.65	
1	pound fat, at 3 cents	.03	
17	pounds top round, at 22 cents	3.74	
16	pounds bottom round, at 22 cents	3.52	
19	pounds rump, at 16 cents	3.04	
1	pound trimming, at 6 cents	.06	
10	pounds leg, at 8 cents	.80	
5	pounds bone, at 2 cents	.10	
8½	pounds ribs (second, third, fourth), at 22 cents	1.87	
9	pounds ribs (fifth, sixth), at 20 cents	1.80	
11	pounds ribs (seventh, eighth), at 18 cents	1.98	
8½	pounds ribs (ninth), at 16 cents	1.36	
4½	pounds flank outside, at 12 cents	.54	
3	pounds flank steak, at 16 cents	.48	
7½	pounds cod fat, at 6 cents	.46	
19	chuck steaks (6), at 17 cents	3.23	
38½	pounds neck of beef, at 16 cents	6.16	
26½	pounds, brisket, at 12 cents	3.18	
35	pounds plate and navel, at 10 cents	3.50	
13	pounds cross rib, at 19 cents	2.47	
6	pounds shoulder meat, at 16 cents	.96	
7½	pounds shin, at 8 cents	.60	
5	pounds shin bone, at 2 cents	.10	
354½	pounds, total		57.02
	Gross margin		11.77

Per cent gross margin, 26.01.

5. Dealer at Brooklyn, N. Y.

Bought 1 carcass, 578 pounds, at 13½ cents			78.03
Sold:			
24	pounds top sirloin, at 19 cents	4.56	
32	pounds brisket, at 10 cents	3.20	
4½	pounds flank steak, at 18 cents	.81	
9	pounds flank steak, at 14 cents	1.26	
1½	pounds hanger, at 18 cents	.32	
2½	pounds skirt steak, at 16 cents	.40	
48	pounds fresh plate, at 10 cents	4.80	
2	pounds kidney, at 16 cents	.32	
22	pounds X rib, at 19 cents	4.18	
42	pounds chuck and skirt steak meat, at 17 cents	7.14	
16	pounds shin beef, at 14 cents	2.24	
9½	pounds fresh cut round, at 18 cents	1.71	
48	pounds neck, shoulder, and steak bones (given away)	.00	
23½	pounds suet (given away)	.00	
19	pounds rump beef, at 18 cents	3.42	
15½	pounds bottom round, at 24 cents	3.72	
34½	pounds round steak, at 26 cents	8.97	
3½	pounds chop meat, at 14 cents	.49	
56	pounds prime rib, at 18 cents	10.08	
18	pounds chuck roast, at 16 cents	2.88	
33½	pounds chuck steak, at 17 cents	5.69	
34	pounds porterhouse steak, at 27 cents	9.18	
43	pounds sirloin steak, at 26 cents	11.18	
28	pounds shop fat, at 2½ cents	.77	
9	pounds flank, at 0 cents	.00	
578½	pounds, total		87.32
	Gross margin		9.29

Per cent gross margin, 11.91.

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6. Dealer at Brooklyn, N. Y.		
Bought 1 carcass, 621 pounds, at 12½ cents		$77.62
Sold:		
41 pounds brisket, at 10 cents	$4.10	
63 pounds plate, at 10 cents	6.30	
103 pounds chuck beef, at 16 cents	16.48	
18 pounds rib end, at 18 cents	3.24	
50 pounds short rib, at 20 cents	10.00	
19 pounds top sirloin, at 20 cents	3.80	
1 pound beef tenderloin, at 20 cents	.20	
39 pounds porterhouse, at 22 cents	8.58	
53 pounds sirloin, at 22 cents	11.66	
6 pounds flank steak, at 20 cents	1.20	
60 pounds top round, at 22 cents	13.20	
30 pounds bottom round, at 22 cents	6.60	
20 pounds round corned beef, at 16 cents	3.20	
9 pounds soup meat, at 16 cents	1.44	
38 pounds shin beef, at 16 cents	6.08	
2 pounds beef kidneys, ar 12½ cents	.25	
19 pounds suet, at 6½ cents	1.24	
22 pounds waste, at 3 cents	.66	
24 pounds bones, at 1 cent	.24	
617 pounds, total		98.47
Gross margin		20.84
Per cent gross margin, 26.85.		
7. Dealer at Newark, N. J.		
Bought 1 carcass, 673 pounds, at 12 cents		80.76
Sold:		
24 pounds top sirloin, at 20 cents	4.80	
46 pounds hip, at 22 cents	10.12	
40 pounds short loins, at 25 cents	10.00	
50 pounds suet and trimmings, at 4 cents	2.00	
34 pounds flank with fat	1.00	
35 pounds shin with bone	2.00	
97 pounds round rump and hosreshoe, at 20 cents	19.40	
76 pounds ribs, at 19 cents	14.44	
76 pounds plate, at 10 cents	7.60	
20 pounds shoulder meat, at 16 cents	3.20	
18 pounds shin bone and trimming	.75	
32 pounds cross rib, at 20 cents	6.40	
95 pounds blank chuck, at 15 cents	14.25	
30 pounds brisket, at 10 cents	3.00	
673 pounds beef (total)		98.96
Gross margin		18.20
Per cent gross margin, 22.53.		

SUMMARY OF STATEMENT ON LOT 5.

[On basis of one animal.]

Shipment and marketing of live cattle:		
Returns per steer at Kansas City, 1,216 pounds, at $8.40		$102.14
Marketing expenses—		
Freight and terminal switching	$1.53	
Yardage	.25	
Feed and insurance	.05	
Commission	.60	
		2.43
Proceeds to shipper		99.71
Slaughtering and wholesaling:		
Cost of live steer to packer		102.14
Proceeds—		
Dressed beef, 691 pounds, average 12.57 cents	86.86	
Hide, 83.5 pounds, average 14.75 cents	12.32	
Oleo fat, 48.6 pounds, average 7.79 cents	3.79	
Offal	4.13	
		107.10
Gross margin to packer		4.96
Retailing:		
Cost of beef to retailer		86.86
Proceeds of beef [1]		106.17
Gross margin to retailer		19.31

[1] Based on average per cent gross margin.

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Lot No. 6.

In lot No. 6 were 23 good native 2-year-old grass steers which were fattened on pasture near Markham, Va. In the spring of 1914 these cattle had been brought to Fauquier County from Nokesville, Va., as 2-year-old feeders, weighing 650 to 700 pounds per head. They were fed on pasture with a ration of corn and cottonseed meal during the summer.

The steers were shipped from Markham, Va., September 26, arriving at Baltimore on September 27, where they were sold on September 28, 1914, to a local butcher. They were held until October 4, when they were slaughtered. The beef was retailed through two meat markets in Baltimore.

ACCOUNT SALES ON LIVE CATTLE

23 steers, 23,925 pounds (Baltimore weight), at $7.50		$1,794.37
Freight, Markham, Va., to Baltimore, Md., 23,925 pounds, at 6.8 cents per hundredweight.	$16.27	
Yardage, at 25 cents per head	5.75	
Feed and insurance	7.36	
Commission	23.00	
		52.38
Proceeds to shipper		1,731.99

SLAUGHTERING AND WHOLESALING.

23 steers, 23,925 pounds, at $7.50		$1,794.37
Feed while holding for slaughter		2.00
		1,796.37
Proceeds:		
Beef, 12,314 pounds, at $12.10		1,489.99
Hides, 1,675 pounds, at 13½ cents		226.13
Fats—		
Caul and ruffle, 842 pounds, at 5 cents	$42.10	
Gut, pluck, and other rough fats, 30 pounds, at 3 cents	.90	
		43.00
Offal—		
Cheek meat, 115 pounds, at 8 cents	9.20	
Tongues, 23, at 60 cents	13.80	
Tails, 23, at 2½ cents	.58	
Feet, 92, at 4 cents	3.68	
Livers, 230 pounds, at 11 cents	25.30	
Sweetbreads, 46, at 5 cents	2.30	
Tripe, 184 pounds, at 6 cents	11.04	
Casings—		
Rounds, 1,725 feet, at ¼ cent	3.45	
Middles, 391 feet, at 1 cent	3.91	
Bladders, 23, at 4 cents	.92	
		74.18
Total proceeds to packer		1,833.30
Gross margin to packer		36.93

RETAIL ACCOUNTS.

1. Hollins Market, Baltimore, Md.

Bought 1 side, 266 pounds, at 12.10 cents $32.19
Sold 260.5 pounds, as per following items:

Cuts.	Pounds.	Average price.	Total.
		Cents.	
Rib	31	17	$5.27
Chuck	24	14	3.36
Plate	29	10	2.90
Shoulder	20	9	1.80
Three corner	15½	14	2.17
Neck	10	9	.90
Brisket	13½	10	1.35
Round	40	18	7.20
Butt	26	20	5.20
Thin end	26½	22	5.83
Rump	9	13	1.17
Shin	10	6	.60
Flank	5	10	.50
Kidney	1	15	.15
			38.40

Total, 260½ pounds.
Gross margin 6.21
Per cent gross margin, 19.29.

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2. Dealer, Lexington Market, Baltimore, Md.
Bought 1 side, 277 pounds, at 12.10 cents $33.52
Sold 273 pounds, as per following items:

Cuts.	Pounds.	Average price.	Total.	
		Cents.		
Chuck	55	14	$7.70	
Brisket	23	10	2.30	
Plate	15	10	1.50	
Shoulder	20	10	2.00	
Rib	32	18	5.76	
Round	48	18	8.64	
Rump	12	13	1.56	
Flank	6	11½	.70	
Shin	10	10	1.00	
Loin	52	18	9.36	
				40.52

Total, 273 pounds.
Gross margin 7.00
Per cent gross margin, 20.88.

SUMMARY OF STATEMENTS ON LOT 6.

[On basis of 1 animal.]

Shipment and marketing of live cattle:		
Returns per steer at Baltimore, 1,040 pounds, at $7.50 per hundredweight		$78.00
Marketing expenses—		
Freight	$0.71	
Yardage	.25	
Feed and insurance	.32	
Commission	1.00	
		2.28
Proceeds to producer		75.72
Slaughtering and wholesaling:		
Cost of live steer to packer		78.00
Proceeds—		
Beef, 535.4 pounds, at 12.10 cents	64.78	
Hide, 73 pounds, at 13.50 cents	9.85	
Oleo fat, 37.9 pounds, average 4.9 cents	1.86	
Offal	3.23	
		79.72
Gross margin to packer		1.72
Retailing:		
Cost of beef to retailer		64.78
Proceeds of beef		77.69
Gross margin to retailer		12.91

Lot No. 7.

Twenty-four good, 3-year-old Oregon grass steers comprised lot No. 7. These steers had been produced under range conditions near Baker City, Oreg., having been run on the Whitman National Forest in summer and fed hay in the valleys in winter.

They were trailed 50 miles to the railroad shipping station at Baker City, loaded on October 10, and arrive at the stockyards at North Portland, Oreg., October 11, 1914. They were sold October 12 and slaughtered October 14, 1914, at a large packing house near the stockyards. The beef was distributed through branch houses at Portland, Oreg.; Spokane, Tacoma, and Seattle, Wash.; and was sold principally through retail markets. One part of the lot was sold to the commissary department of one of the trunk railroad lines for dining-car service.

ACCOUNT SALES ON LIVE CATTLE.

24 steers (Portland weight), 31,110 pounds, at $7.15		$2,224.37
Freight, Baker, Oreg., to Portland, carload rate	$60.00	
Yardage, at 25 cents per head	6.00	
Fire insurance	.10	
Alfalfa hay in pens at Portland, 2 days	13.54	
Commission, at 60 cents per head	14.40	
		94.04
Proceeds to shipper		2,130.33

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SLAUGHTERING AND WHOLESALING.

24 steers, 31,110 pounds, at $7.15		$2,224.37
Proceeds:		
Beef, 17,262 pounds, as per following items [1]—		
5 cattle, 3,580 pounds (Tacoma)	$411.81	
6 cattle, 3,748 pounds (Portland)	431.00	
4 cattle, 2,667 pounds (Spokane)	299.59	
9 cattle, 7,267 pounds (Seattle)	872.04	
24 cattle, 17,262 pounds		2,014.46
Hides, 1,963 pounds, at 14.55 cents [2]		285.08
Oleo fats, 1,475 pounds, at 4.04 cents [3]		59.59
Offal—		
Edible offal [4]	48.62	
Fertilizer [5]	7.81	
Casings, average 35.5 cents per head	8.52	
		64.95
Total proceeds to packer		2,424.08
Gross margin to packer		199.71

RETAIL ACCOUNTS.

1. Dealer at Portland, Oreg.

Bought 1 carcass, [6] 720 pounds, at 11.5 cents		$82.80
Sold: [7]		
179 pounds round, at 18.5 cents	$33.12	
72 pounds rib, at 16.5 cents	11.88	
129 pounds loin, at 23.5 cents	30.32	
36 pounds flank, at 10 cents	3.60	
301 pounds chuck, at 13.5 cents	40.63	
717 pounds (total)		119.55
Gross margin		36.75

Per cent gross margin, 44.38.

2. Dealer at Seattle, Wash.

Bought wholesale cuts, as follows:		
3 chucks and plates, 506 pounds, at 9½ cents		48.07
1 flank, 18 pounds, at 6 cents		1.08
1 round, 95 pounds, at 13 cents		12.35
Total, 619 pounds		61.50
Sold: [7]		
172 pounds chuck and plate	21.16	
163½ pounds chuck and plate	19.96	
169½ pounds chuck and plate	20.72	
16 pounds flank	2.09	
95 pounds round	14.14	
615½ pounds (total)		78.07
Gross margin		16.57

Per cent gross margin, 26.94.

SUMMARY OF PROCEEDS ON LOT 7.

[On basis of 1 animal.]

Shipment and marketing of live cattle:		
Returns per steer at Portland, 1,296 pounds, at $7.15		$92.67
Marketing expenses—		
Freight and terminal switching	$2.50	
Yardage	.25	
Feed and insurance	.06	
Commission	.60	
		3.41
Proceeds to producer		89.26
Slaughtering and wholesaling:		
Cost of live steer to packer		92.67
Proceeds—		
Beef, 719.2 pounds, average 11.7 cents	84.15	
Hide, 81.8 pounds, at 11.55 cents	11.90	
Oleo fats, 61.5 pounds, at 4.04 cents	2.48	
Offal	2.72	
		101.25
		8.58
Retailing:		
Cost of beef to retailer		84.15
Proceeds of beef		114.16
Gross margin to retailer		30.01

[1] Recapitulation of branch houses account sales.
[2] Based on 17.5 cents for cured hides, shrinkage 17 per cent.
[3] Based on 4.25 cents at net weight, shrinkage 5 per cent.
[4] Basis, 28 cents per hundredweight on shrunk beef weight (17,362 pounds).
[5] Basis, 4.5 per hundredweight on shrunk beef weight (17,362 pounds).
[6] This account is representative of 4 cattle of same grade and price bought by this dealer.
[7] Summary of itemized accounts on retail cuts.

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Lot No. 8.

Lot No. 8 consisted of 28 common 3-year-old southern grass steers which were raised in Alabama and, as is the custom in that section, were fed no grain with the exception of 1 pound of cottonseed cake per day during a few weeks of the first winter.

The cattle were loaded at Porterville, Miss., October 27, arrived at the National Stock Yards, East St. Louis, Ill., October 28, were sold the same day, and slaughtered at one of the large packing houses near the stockyards October 29, 1914.

ACCOUNT SALES ON LIVE CATTLE.

28 steers,[1] 20,120 pounds (National Stock Yards, Ill., weight), at $5.65		$1,136.78
5 oxen, 4,540 pounds (National Stock Yards, Ill., weight), at $5.15		233.81
		1,370.59
Freight on 33 cattle, Porterville, Miss., to National Stock Yards, Ill. (minimum car rate)	$67.00	
Yardage, at 25 cents per head (maximum carload rate)	8.00	
Fire insurance at 10 cents per car	.10	
Hay, 3 bales, at 85 cents	2.55	
Commission (maximum carload single-deck charge)	15.00	
		92.65
Proceeds to shipper		1,277.94

SLAUGHTERING AND WHOLESALING.

28 steers, 20,120 pounds (National Stock Yards, Ill., weight), at $5.65			$1,136.78
Beef,[2] 9,866 pounds, as per following items—			
Baltimore, Md.	6 carcasses, 2,324 pounds	$238.59	
Fort Wayne, Ind	5 carcasses, 1,743 pounds	172.75	
Detroit, Mich.	5 carcasses, 1,689 pounds	153.69	
Wheeling, W. Va.	5 carcasses, 1,664 pounds	126.14	
Indianapolis, Ind.	7 carcasses, 2,446 pounds	214.18	
Total	28 carcasses, 9,866 pounds		905.35
Hides, 28 extra light Texas, 1,381 pounds, at $14.45 per hundredweight			199.55
Oleo fats, 749 pounds, at $5.85 per hundredweight			43.82
Offal, as per following items—			

	Pieces.	Cold weight.	Price.	Amount.	
		Pounds.	*Cents.*		
Livers	22	186	8½	$15.81	
Hearts	28	68	6½	4.42	
Ox tails	28	27	6	1.62	
Tongues	28	171	47	13.16	
Brains		23½	6	1.41	
Sweetbreads		6¼	22	1.38	
Cheek meat		102	9¾	10.07	
Head meat		21	9¾	2.07	
Ox lips		20	4¾	.95	
Ox palate		2½	4	.10	
Ear glands		3¼	4	.13	
Weasand meat		11	9⅛	1.00	
Pituitary glands		¾			
Heart sweetbreads		3½	4	.14	
Casings			50	14.00	
Switches			3	.84	
Tallow, 30 cents per 1,000 pounds alive				6.03	
Heads, 26 cents per 1,000 pounds alive				5.23	
Feet, 18 cents per 1,000 pounds alive				3.62	
Blood, 10 cents per 1,000 pounds alive				2.01	
Total proceeds to packer					1,232.80
Gross margin to packer					96.02

[1] 28 steers comprised in following statement.
[2] Recapitulation of branch house account sales.

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1. Dealer at Indianapolis, Ind.

Bought 1 side of beef, 170 pounds, at 10½ per pound		$17.85
Sold:		
4 pounds sirloin, at 20 cents	$0.80	
5 pounds top sirloin, at 20 cents	1.00	
13 pounds porterhouse, at 25 cents	3.25	
25 pounds round steaks, at 20 cents	5.00	
8 pounds rump, at 12½ cents	1.00	
5 pounds heel, at 12½ cents	.63	
4 shank soup bones	.20	
4 pounds neck of beef, at 12½ cents	.50	
11 pounds plate cuts (brisket), at 12 cents	1.32	
11½ pounds plate piece, at 12 cents	1.35	
15¾ pounds shoulder clod, at 17c	2.68	
1 pound kidneys, at 5 cents	.05	
8 pounds suet, at 5c	.40	
4 pounds cod fat, at 5 cents	.20	
17 pounds ribs, at 15 cents	2.55	
32 pounds chucks, at 15 cents	4.80	
168 pounds (total)		25.73
Gross margin		7.88

Per cent gross margin, 44.15.

2. Dealer at Indianapolis, Ind.

Bought 1 carcass, beef, 324 pounds, at 8½ cents per pound		26.73
Sold:		
47 pounds sirloin, at 15 cents	7.05	
47 pounds round cuts, at 15 cents	7.05	
18 pounds rump, at 10 cents	1.80	
8 pounds heel, at 12½ cents	1.00	
16 pounds shank soup bones, at 7 cents	1.12	
8½ pounds flank cuts, at 12½ cents	1.06	
31½ pounds rib cuts, at 12½ cents	3.91	
91½ pounds chuck cuts, at 12½ cents	11.41	
17 pounds brisket, at 10 cents	1.70	
17½ pounds plate piece, at 10 cents	1.75	
7 pounds shin soup bones, at 6½ cents	.46	
4 pounds trimmings and bones, at ½ cent	.02	
7 pounds suet and cod fat, at 4½ cents	.32	
319½ pounds		38.65
Gross margin		11.92

Per cent gross margin, 44.59.

3. Dealer at Fort Wayne, Ind.

Bought 1 side of beef, 187 pounds, at 10 cents per pound		18.70
Sold:		
18½ pounds sirloin, at 22 cents	4.07	
7 pounds porterhouse, at 23 cents	1.61	
19 pounds round steaks, at 20 cents	3.80	
8 pounds rump, at 12½ cents	1.00	
8 pounds heel, at 15 cents	1.20	
10 pounds shank soup bones, at 3 cents	.30	
3 pounds rump bone, at 3 cents	.10	
4½ pounds flank steak, at 12½ cents	.57	
5 pounds outside flank (stew), at 6 cents	.30	
13½ pounds rib cuts, at 15 cents	2.03	
57 pounds chuck cuts, rib roast, at 14 cents	7.98	
20 pounds plate cuts, at 12 cents	2.40	
8 pounds shin soup bones, at 3¾ cents	.30	
¾ pounds kidneys	.05	
2½ pounds suet, at 3½ cents	.09	
184¾ pounds		25.80
Gross margin		7.10

Per cent gross margin, 37.97.

4. Dealer at Detroit, Mich.

Bought 1[1] carcass of beef, 343 pounds, at 9 cents per pound		30.87
Sold:		
29½ pounds sirloin, at 17 cents	5.02	
21 pounds porterhouse, at 18 cents	5.78	
41 pounds round steaks, at 16 cents	6.56	
20½ pounds rump, at 10 cents	2.05	
11½ pounds heel, at 12 cents	1.38	
12½ pounds shank soup bones, at 5 cents	.63	
4 pounds outside flank (stew), at 10 cents	.40	
32 pounds chuck rib roasts, at 13 cents	4.16	
96 pounds pot roasts, at 12 cents	11.52	
8½ pounds neck of beef, at 9 cents	.76	
31 pounds plate piece, at 9 cents	2.78	
11½ pounds shoulder clod, at 11 cents	1.26	
5 pounds kidneys, at 7 cents	.35	
10 pounds bones	.00	
5 pounds trimmings	.00	
338½ pounds		40.65
Gross margin		9.78

Per cent gross margin, 31.68.

[1] This dealer bought 4 of the 5 carcasses shipped to Detroit and this data may be considered representative.

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5. Dealer at Indianapolis, Ind.

Bought 1 side of beef, 196 pounds, at 9½ cents per pound		$18.62
Sold:		
18½ pounds sirloin, at 17 cents	$3.10	
13½ pounds porterhouse, at 18 cents	2.43	
28 pounds round steaks, at 17 cents	4.76	
5½ pounds rump, at 12½ cents	.72	
6 pounds heel, at 14 cents	.84	
12½ pounds shank soup bones, at 3 cents	.38	
1½ pounds flank steak, at 18 cents	.22	
4½ pounds corned beef, at 12½ cents	.53	
20 pounds rib cut, at 12 cents	2.40	
26½ pounds chuck cuts, at 13 cents	3.41	
10½ pounds cross ribs, at 11 cents	1.13	
21½ pounds plate cuts, at 10½ cents	2.26	
12 pounds shin and shoulder cuts, at 14 cents	1.68	
2½ pounds drop tenderloin, at 12 cents	.30	
½ pounds kidneys, at 7 cents	.05	
4½ pounds cod fat, at 6 cents	.25	
7½ pounds bones, at 1 cent	.07	
194½ pounds		24.53
Gross margin		5.91

Per cent gross margin, 31.74.

SUMMARY OF STATEMENTS ON LOT 8.

[On basis of 1 animal.]

Shipment and marketing of live stock:		
Returns per steer at National Stock Yards, Ill., 719 pounds, at $5.65		$40.62
Marketing expenses—		
Freight	$2.03	
Yardage	.24	
Feed and insurance	.08	
Commission	.45	
		2.80
Proceeds to producer		37.82
Slaughtering and wholesaling:		
Cost of live steer to packer		40.62
Proceeds:		
Beef, 352.4 pounds, average 9.17 cents	32.32	
Hide, 49.3 pounds, average 14.45 cents	7.12	
Oleo fat, 26.8 pounds, average 5.85 cents	1.57	
Offal	3.00	
		44.01
Gross margin to packer		3.39
Retailing:		
Cost of beef to retailer		32.32
Proceeds of beef [1]		44.61
Gross margin to retailer		12.29

Lot No. 9.

In lot No. 9 were 27 medium Texas steers which were fed at Saginaw, Tex., about 8 miles from the Fort Worth Union Stock Yards. They were bought as feeders at the Fort Worth market about four months previously and driven to the feed lot. The cattle were fed cottonseed cake on grass for 120 days.

They were shipped from Saginaw, Tex., to the stockyards at Fort Worth on November 2, 1914, were sold and slaughtered the same day. The beef was distributed through branch houses in Beaumont, Dallas, and San Antonio, Tex.; New Orleans, La.; Memphis, and Chattanooga, Tenn.; Atlanta and Savannah, Ga.; Norfolk and Richmond, Va.; Louisville, Ky.; and Scranton, Pa. Two carcasses were disposed of at Fort Worth. The beef was sold principally through retail markets.

ACCOUNT SALES ON LIVE CATTLE.

27 steers, 28,640 pounds (Fort Worth weight), at $6.65		$1,904.56
Freight, Saginaw to Fort Worth, Tex	$22.95	
Yardage, at 25 cents per head	6.75	
Feed and insurance	1.38	
Commission	13.50	
		44.58
Net proceeds to shipper		1,859.98

[1] Based on average per cent gross margin.

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SLAUGHTERING AND WHOLESALING.

27 steers, 28,640 pounds, at 6.65		$1,904.56
Proceeds:		
Beef,[1] 15,285 pounds, as per following items—		
2 cattle, 1,106 pounds (Atlanta, Ga.)	$116.37	
2 cattle, 1,005 pounds (Beaumont, Tex.)	106.58	
4 cattle, 2,327 pounds (Chattanooga, Tenn.)	246.77	
1 cattle, 597 pounds (Dallas, Tex.)	53.34	
1 cattle, 610 pounds (New Orleans, La)	67.00	
2 cattle, 1,238 pounds (Norfolk, Va.)	151.43	
3 cattle, 1,909 pounds (Richmond, Va.)	225.35	
3 cattle, 1,688 pounds (Louisville, Ky.)	171.85	
2 cattle, 946 pounds (Memphis, Tenn.)	95.40	
2 cattle, 1,217 pounds (San Antonio, Tex.)	126.04	
2 cattle, 1,073 pounds (Savannah, Ga.)	96.57	
1 cattle, 535 pounds (Scranton, Pa.)	61.53	
2 cattle, 1,024 pounds (Fort Worth, Tex.)	87.04	
27 cattle, 15,285 pounds	1,605.27	
Hides—		
16 Texas steer hides, 1,258 pounds, at $15.30	192.47	
11 light Texas steer hides, 736 pounds, at $14.65	107.82	
		300.29
Fats, Oleo fat, 1,096 pounds, at 6.29 cents per pound	68.94	
		153.79
Offal—		
Livers, 107 pounds, at 8½ cents	9.09	
Hearts, 91 pounds, at 5⅝ cents	5.12	
Tails, 28 pounds, at 7½ cents	2.10	
Tongues, 25 pieces, at 59 cents each	14.75	
Brains, 24 pounds, at 6 cents	1.44	
Sweetbreads, 10 pounds, at 22 cents	2.20	
Cheek meat, 96 pounds, at 9¾ cents	9.48	
Head meat, 32 pounds, at 9¾ cents	3.16	
Ox lips, 19 pounds, at 5 cents	.95	
Palates, 5 pounds, at 4 cents	.20	
Casings, 50 cents per head	13.50	
Switches, 3 cents per head	.81	
Tallow stock, 28 cents per 1,000 alive	8.02	
Heads, 20 cents per 1,000 alive	5.73	
Feet, 19 cents per 1,000 alive	5.44	
Blood, 10 cents per 1,000 alive	2.86	
Total value of offal		84.85
Total proceeds to packer		2,144.20
Gross margin to packer		239.64

RETAIL ACCOUNTS.

1. Dealer, Main Street, Memphis, Tenn.

Bought 1 carcass, 470 pounds, at 10½ cents		$49.35
Sold:		
11½ pounds sirloin, at 25 cents	$2.81	
8 pounds top sirloin, at 17½ cents	1.40	
22½ pounds porterhouse, at 30 cents	6.75	
5 pounds club steak, at 32½ cents	1.63	
3½ pounds T-bone steak, at 25 cents	.88	
22 pounds tenderloin steak, at 25 cents	5.50	
48 pounds round steak, at 20 cents	9.60	
36 pounds rump, at 14 cents	5.04	
8 pounds heel, at 15 cents	1.20	
30 pounds shank soup bones, at 3 cents	.90	
2½ pounds flank steak, at 22½ cents	.56	
9 pounds outside flank (stew), at 10 cents	.90	
28 pounds rib cut, at 25 cents	7.00	
8 pounds rib cut, third, at 20 cents	1.60	
6 pounds rib ends, at 12½ cents	.75	
30 pounds chuck rib roast, at 12½ cents	3.75	
30 pounds chuck steaks, at 15 cents	4.50	
20 pounds pot roasts, at 12½ cents	2.50	
6 pounds neck of beef, at 4 cents	.24	
25 pounds brisket (fresh), at 10 cents	2.50	
22 pounds shoulder clod, at 15 cents	3.30	
3 pounds shoulder meat, at 10 cents	.30	
19 pounds, shin soup bones, at 3 cents	.57	
2 pounds drop tenderloin trimmings, at 5 cents	.10	
10 pounds sausage meat, at 12½ cents	1.25	
20 pounds hamburger, at 17½ cents	3.50	
1½ pounds kidney	.20	
15 pounds shop fat, at 2 cents	.30	
10 pounds bones, at 1 cent	.10	
461½ pounds		69.63
Gross margin		20.28
Per cent gross margin, 41.11.		

[1] Recapitulation of branch house account sales.

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2. Dealer, Beaumont, Tex.

Bought 1 side, 262 pounds, at 10½ cents		$27.51
Sold:		
40½ pounds sirloin, at 20 cents	$8.15	
17½ pounds porterhouse, at 25 cents	4.31	
35½ pounds round steak, at 20 cents	7.15	
8½ pounds rump, at 18½ cents	1.53	
30½ pounds shank soup bones, at 4½ cents	1.31	
1½ pounds flank steak, at 20 cents	.25	
9½ pounds first cut, at 20 cents	1.85	
21½ pounds chuck rib roast, at 15 cents	3.19	
16½ pounds chuck steaks, at 19 cents	3.14	
4 pounds drop tenderloin, at 15 cents	.60	
31 pounds hamburger, at 15 cents	4.65	
1 pound kidneys, at 5 cents	.05	
5½ pounds suet, at 5 cents	.26	
5 pounds dog meat, at 7 cents	.35	
227½ pounds		36.79
Gross margin		9.28

Per cent gross margin, 33.73.

SUMMARY OF STATEMENT ON LOT 9.

[On basis of 1 animal.]

Shipment and marketing of live cattle:		
Returns per steer at Fort Worth, 1,060 pounds, at 6.65 cents		$70.49
Marketing expenses—		
Freight	$0.85	
Yardage	.25	
Feed and insurance	.05	
Commission	.50	
		1.65
Proceeds to producer		68.84
Slaughtering and wholesaling:		
Cost of live steer to packer		70.49
Proceeds—		
Beef, 566.1 pounds, average 10.50 cents	59.44	
Hide, 73.8 pounds, average 15.1 cents	11.14	
Oleo fat, 40.6 pounds, average 6.29 cents	2.55	
Offal	3.14	
		76.27
Gross margin to packer		5.78
Retailing:		
Cost of beef to retailer		59.44
Proceeds of beef		71.68
Gross margin to retailer		12.24

Lot No. 10.

The animal used in lot No. 10 was a good native 2-year-old grass steer which was raised about 5 miles from Lexington, Ky. It was driven to Lexington November 18, 1914, and slaughtered the same day. The beef was retailed by the local butcher.

Proceeds to producer, 1 steer, 1,238 pounds, at $7.50		$92.85

RETAIL ACCOUNT.

Cost of steer to local butcher			$92.85
Proceeds:			
Beef as per following items—			
Loin, 115 pounds, at 20 cents	$23.00		
Round and rump, 115 pounds, at 16 cents	24.80		
Shoulder and shank, 60 pounds, at 12 cents	7.20		
Plate, 84 pounds, at 12 cents	10.08		
Rib and chuck, 145 pounds, at 15 cents	21.75		
Neck, 24½ pounds	3.35		
Flank, 4 pounds, at 22½ cents	.90		
Flank for chili meat, 8½ pounds	1.00		
Sachet, 3 pounds	.35		
Suet, 22 pounds, at 5 cents	1.10		
Kidney	.10		
Total beef, 581 pounds		$93.53	
Hide, 88 pounds, at 14 cents		12.32	
Fat, 26 pounds, at 6 cents		1.56	
Offal:			
Head, trimmed, 24 pounds, at 60 cents per hundredweight	.14		
Feet, 18 pounds, at 60 cents per hundredweight	.11		
Tongue, 5 pounds, at 7 cents	.35		
Liver, 15 pounds, at 10 cents	1.50		
Heart, 4 pounds, at 7 cents	.28		
Head meat, 5 pounds, at 7 cents	.35		
Tripe, 26 pounds	.40	3.13	
Total proceeds to butcher			110.64
Gross margin to butcher			17.79

Per cent gross margin, 13.96.

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SUMMARY OF STATEMENTS ON LOT 10.

Cost of live steer to local butcher		$92.85
Proceeds:		
Beef (retail cuts)	$93.63	
Hide, 88 pounds, at 14 cents	12.32	
Fats, 26 pounds, ar 6 cents	1.56	
Offal	3.13	
		110.64
Gross margin to retailer		17.79

Lot No. 11.

The animal used in lot No. 11 was a medium butcher cow. It was hauled in a wagon about 5 miles to La Crosse, Wis., November 23, sold to the Farmers' Cooperative Co., and slaughtered November 24, 1914. The beef was sold to retail dealers in La Crosse.

MARKETING COW.

1 cow, 1,100 pounds, at $4	$44.00	
Marketing cost	.80	
Proceeds to producer		$43.20

SLAUGHTERING AND WHOLESALING.

Cost of live cow to packer (weight delivered at plant), 1,100 pounds, at $4		$44.00
Proceeds:		
Beef, one side, 248 pounds, at 9 cents	$22.32	
Beef, one side, 236 pounds, at 8½ cents	19.47	
	$41.79	
Hide, 70 pounds, at 14.5 cents	10.15	
Offal, as per following items—		
Head meat, 6 pounds, at 10½ cents	.63	
Tongue, 4½ pounds, at 8 cents	.36	
Heart, 4½ pounds, at 8 cents	.36	
Liver, 12 pounds, at 7 cents	.84	
Casings	.21	
Blood, 2 gallons, at 20 cents	.40	
Tail, 1½ pounds	.10	
Fats, head fat, tripe, pluck, etc., tanked	.00	
Tallow and tankage, estimated	1.00	
	3.90	
Total proceeds to packer		55.84
Gross margin to packer		11.84

1. Dealer, La Crosse, Wis.

Bought, one side of cow, 248 pounds, at 9 cents		22.32
Sold:		
15¾ pounds sirloin, at 20 cents	3.15	
5¾ pounds porterhouse, at 25 cents	1.34	
12¼ pounds porterhouse, at 18 cents	2.20	
31 1/16 pounds round steak, at 18 cents	5.63	
4¼ pounds rump, at 17 cents	.72	
6½ pounds heel, at 15 cents	.97	
6½ pounds shank soup bones	.30	
5 pounds rump bone, at 5 cents	.25	
3¾ pounds flank cut	.47	
16¼ pounds rib cuts, at 15 cents	2.44	
9⅛ pounds chuck rib roast, at 15 cents	1.37	
2 pounds chuck rib roast, at 18 cents	.36	
9¾ pounds pot roasts, at 15 cents	1.48	
5 pounds neck of beef, at 10 cents	.50	
2½ pounds cross ribs, at 11 cents	.25	
19¾ pounds pot roasts, at 12½ cents	2.40	
9 pounds pot roasts, at 11 cents	1.00	
2½ pounds brisket (fresh), at 8 cents	.20	
21½ pounds plate piece	2.15	
14½ pounds shin soup bones, at 5 cents	.73	
1½ pounds sausage meat, at 12½ cents	.16	
6 pounds hamburger (flank), at 15 cents	.90	
1 pound kidneys	.10	
7 pounds suet	.25	
0 pound cod fat	.25	
3 pounds shop fat	.10	
8 pounds bones	.02	
1½ pounds trimmings, at 12½ cents	.16	
1 pound tallow	.03	
6 pounds waste		
236 1/16		
Total proceeds to retailer		29.86
Gross margin to retailer		7.54

Per cent gross margin, 33.78.

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2. Dealer, La Crosse, Wis.

Bought one side of cow, 236 pounds, at 8½ cents		$19.47
Sold:		
Loin cuts, 44.4 pounds, at 18 cents	$8.00	
Round steaks, 23.9 pounds, at 18 cents	4.30	
Rump, 8.6 pounds, at 12 cents	1.03	
Heel, 5 pounds, at 12 cents	.60	
Flank steak, 1.6 pounds, at 15 cents	.24	
Outside flank (stew), 10 pounds, at 6 cents	.60	
Rib cuts, 11 pounds, at 15 cents	1.65	
Chuck rib roasts, 40 pounds, at 12½ cents	5.00	
Chuck steaks, 10 pounds, at 12½ cents	1.25	
Pot roasts (plate and brisket), 23 pounds, at 10 cents	2.30	
Cross ribs, 32.5 pounds, at 10 cents	3.25	
Shank soup bones, 8.1 pounds, at 6 cents	.49	
Total proceeds to retailer		28.71
Gross margin to retailer		9.24
Per cent gross margin, 47.46.		

SUMMARY OF STATEMENTS ON LOT 11.

Marketing cow:		
Returns from cow, 1,100 pounds, at $4		$44.00
Marketing expense		.80
Proceeds to producer		43.20
Slaughtering and wholesaling:		
Cost of live cow to packer		44.00
Proceeds—		
Beef, 484 pounds, at average 8.62 cents	$41.79	
Hide, 70 pounds, at 14½ cents	10.15	
Offal and fat	3.90	
		55.84
Gross margin to packer		11.84
Retailing:		
Cost of beef to retailer		41.79
Proceeds of beef [1]		54.60
Gross margin to retailer		12.81

Lot No. 12.

The animal used in lot No. 12 was one good Texas steer raised about 6 miles from Paris, Tex. The steer was purchased by the local butcher on October 24, 1914, kept in a feed lot with 150 to 200 other cattle from October 24 to November 19, 1914, and was slaughtered on the latter date at the municipal abattoir. The beef was retailed by the local butcher.

Proceeds to producer, 1 steer,[2] 825 pounds, at $5.50		$45.38

RETAIL ACCOUNT.

Cost of steer to local butcher				$45.38
Proceeds:				
Beef as per following items—				
Loin	43.5	pounds, at 20 cents	$8.70	
Porterhouse	23.5	pounds, at 20 cents	4.70	
Porterhouse	22	pounds, at 17½ cents	3.85	
Round	53.25	pounds, at 20 cents	10.65	
Rump	20.5	pounds, at 17½ cents	3.59	
Hock soup bones	26	pounds	.70	
Flank	1.75	pounds, at 20 cents	.35	
Ribs	89.5	pounds, at 17½ cents	15.66	
Neck	10.25	pounds, at 11 cents	1.13	
Plate	62	pounds, at 12½ cents	7.75	
Chuck	25.25	pounds, at 8 cents	2.02	
Chill meat	50.25	pounds, at 11 cents	5.53	
Kidneys	2.75	pounds, at 5 cents	.14	
Tail	2.25	pounds	.10	
Shoulder bone	24	pounds	.50	
Total beef	456.75	pounds	$65.37	
Hide, 60 pounds, at 10 cents			6.00	
Offal:				
Spleen, lungs, and brain			.15	
Tongue, 5.5 pounds, at 12½ cents			.69	
Liver, 13.5 pounds, at 8 cents			1.08	
			1.92	
Total proceeds to butcher				73.29
Gross margin to butcher [3]				27.91
Per cent gross margin, 61.50.				

[1] Based on average per cent gross margin.

[2] Steer fed 26 days in local butcher's lot at estimated cost of $4.92. Weighed 860 pounds at end of this period.

[3] Includes expense of feeding 26 days.

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SUMMARY OF STATEMENTS ON LOT 12.

Marketing, slaughtering, and retailing steer:		
Cost of live steer to local butcher		$45.38
Proceeds:		
Beef, retail cuts	$65.37	
Hide, 60 pounds, at 10 cents	6.00	
Offal	1.92	
		73.29
Gross margin to retailer		17.79

Lot No. 13.

The animal used in lot No. 13 was a medium 2-year-old western grass steer raised about 20 miles from Fort Collins, Colo. The steer was driven to Fort Collins on November 28 and slaughtered December 1, 1914, by the local butcher and the beef was retailed by him.

Proceeds to producer, 1 steer, 1,030 pounds, at $6.50 ..... $66.95

RETAIL ACCOUNT.

Cost of steer to local butcher		$66.95
Proceeds:		
Beef as per following items—		
Sirloin, 19¾ pounds, at 25 cents	$4.94	
Porterhouse flank, 6 pounds, at 15 cents	.90	
T-bone, 16½ pounds, at 23 cents	3.80	
Strips for hamburger, 3½ pounds, at 17½ cents	.61	
Round steak, 30¾ pounds, at 25 cents	7.69	
Rump, 7 pounds, at 20 cents	1.40	
Rump, third cut, 2⅜ pounds, at 17½ cents	.41	
Rump, fourth cut, 2½ pounds, at 12½ cents	.31	
Shank soup bone, 12½ pounds	.35	
Rump soup bone, 3⅜ pounds	.15	
Heel, 7⅜ pounds, at 20 cents	1.48	
Flank steak, 1½ pounds	.28	
Left hind quarter, 119 pounds	22.00	
Scrap, ½ pound, at 5 cents	.03	
Rib cut, 21½ pounds, at 15 cents	3.19	
Rib, 27¾ pounds, at 17½ cents	4.86	
Rib, upper, 27 pounds, at 17½ cents	4.73	
Hamburger meat, 6⅛ pounds, at 17½ cents	1.11	
One-half of forequarter, 87½ pounds, at 11 cents	9.63	
Plate piece, 23½ pounds, at 14 cents	3.29	
Shoulder clod, 37½ pounds, at 17½ cents	6.52	
Shoulder steak, 15¾ pounds, at 20 cents	3.15	
Shank soup bones, 8⅞ pounds	.35	
Neck, 10½ pounds, at 15 cents	1.58	
Kidneys, 1⅛ pounds	.05	
Suet and bone, 4⅞ pounds	.25	
Total beef, 506.35 pounds		$83.06
Hide, 74 pounds, at 13½ cents		9.81
Offal, 289¾ pounds, at ½ cent	1.45	
Tongue, 3 pounds, at 17½ cents	.53	
Liver, 11 pounds, at 10 cents	1.10	
Blood, 65 pounds, at ½ cent	.33	
Brains, 1½ pounds	.15	
Heart, 3 pounds, at 10 cents	.30	
		3.86
Total proceeds to butcher		96.73
Gross margin to butcher		29.78
Per cent gross margin, 44.51.		

SUMMARY OF STATEMENTS OF LOT 13.

Cost of live steer to local butcher		$66.95
Proceeds:		
Beef	$83.06	
Hide, 74 pounds, at 13½ cents	9.81	
Offal	3.86	
		96.73
Gross margin to retailer		29.78

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Lot No. 14.

The animal used in lot No. 14 was a good 2-year-old native grass heifer which had been raised on pasture, with a small grain ration and dry roughage in winter. The heifer was driven about 4 miles to Story City, Iowa, December 4, 1914, and slaughtered on the same date. The animal was bought from the farmer by a local stock buyer and was sold to the local butcher at a profit of $1. The beef was retailed by the butcher.

Proceeds to producer, 1 heifer, 1,040 pounds, at $0.625	$65.00
Cost to local shipper-dealer	65.00
Proceeds to local shipper-dealer	66.00
Gross margin to local shipper dealer	1.00

RETAIL ACCOUNT.

Cost of steer to local butcher			$66.00
Proceeds:			
Beef, as per following items—			
84 pounds loin cuts, at 18 cents	$15.12		
78 pounds round steaks, at 18 cents	14.04		
12 pounds bottom round, at 15 cents	1.80		
23 pounds rump, at 12 cents	2.76		
16 pounds shank soup bones, at 4 cents	.64		
32 pounds flank, at 14 cents	4.48		
30 pounds rib cuts, at 15 cents	4.50		
94 pounds chuck cuts, at 15 cents	14.10		
20 pounds pot roasts, at 15 cents	3.00		
26 pounds neck of beef, at 12½ cents	3.25		
12 pounds brisket (fresh), at 12½ cents	1.50		
40 pounds plate piece, at 12½ cents	5.00		
24 pounds shin soup bones, at 5 cents	.60		
7½ pounds sausage meat, at 15 cents	1.13		
6 pounds hamburger, at 15 cents	.90		
16 pounds suet, at 3 cents	.48		
4 pounds shop fat, at 2 cents	.08		
4 pounds bones (not sold).			
528¼ pounds		$73.38	
Hide, 69 pounds, at 17 cents	11.73		
Fats, rough tallow, 42 pounds, at 2 cents	.84		
Offal—			
Head, dried and sold as bones, estimated weight dry, 12 pounds, at ¾ cent	.09		
Feet, estimated weight dry, 9 pounds, at ¾ cent	.06		
Tongue, 3 pounds, at 15 cents	.45		
Liver, 10¾ pounds, at 8 cents	.86		
Heart, 3 pounds, at 15 cents	.45		
Cheek meat (used for sausage), 4 pounds, at 15 cents	.60		
Total offal		2.51	
Total proceeds			88.46
Gross margin to butcher			22.46

Per cent gross margin, 34.03.

SUMMARY OF STATEMENTS ON LOT 14.

Cost of live steer to local butcher		$66.00
Proceeds:		
Beef, 528¼ pounds	$73.38	
Hide, 69 pounds, at 17 cents	11.73	
Fat, 42 pounds, at 2 cents	.84	
Offal	2.51	
		88.46
Gross margin to local butcher		22.46

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